EVC-X10

SERVICE MANUAL

AEP Model
UK Model

Handycam 2006i
Video 8

EVC-X10 has nearly same specifications as those of CCD-V90E.
This SERVICE MANUAL describes only the differences between EVC-X10 and CCD-V90E.
On the occasion of repair, use the SERVICE MANUAL for CCD-V90E in combination.

MAIN DIFFERENCES

- Addition of CC-17, IC-3 and TF-18 boards, and change in the connection of board related harness.
- Change of FD-4P board by deleting ZOOM LENS, AF-32 board, ZOOM MOTOR, FOCUS, IRIS switch and AUTO FOCUS switch.
- Addition of FI-3, FC-23 and FC-24 boards by changing the VIEWFINDER.

SPECIFICATIONS

System	
Video recording system	Rotary two heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	PAL colour, CCIR standards
Usable cassette	8 mm video format cassette
Tape speed	SP: Approx. 20.051 mm/sec. LP: Approx. 10.058 mm/sec.
Recording or playback time	SP: 90 min. (P5-90) LP: 180 min. (P5-90)
Fast forward time	Approx. 6 min. 15 sec. (P5-90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electric viewfinder (0.7" black and white)

Lens mount	C mount
Colour temperature	Preset values OUTDOOR: 5,800 K INDOOR: 3,200 K Auto: From the light at a tungsten lamp to the light on a slightly overcast day.
Minimum illumination	6 lux (supplied lens F1.4)
Illumination range	6 lux–100,000 lux (0.56–9,290 footcandles)
Recommended illumination	More than 100 lux (9.3 footcandles)

— continued on next page —

MICROFILM

8 VIDEO CAMERA RECORDER

SONY®

Input and output connector

Output jacks	Video output: phono 1 Vp-p, 75 ohms unbalanced, sync negative Audio output: phono −10 dBs, at output impedance less than 2.2 kilohms
Earphone jack	Minijack, 8-ohm impedance
Remote connector	5-pin connector
Remote connector (for handgrip)	Special minijack
Lens connector	4-pin connector
Viewfinder connector	8-pin connector (2)
MIC jack	Minijack, −66 dBs, low impedance With 2.5-3 V DC output, impedance 6.8 kilohms
Microphone power output jack	Special minijack, 5 V DC

Display in the viewfinder

Mode indication	REC/STBY/OUTDOOR/INDOOR/shutter speed
Caution indication	BATTERY/DEW/TAPE END/CAUTION/CASSETTE
Date or time indication	Small 8 characters Date: From 1. 1, 1988 to 31. 12, 2015 Time: 24 hour cycle
Clock	Crystal lock
Memory back-up	Approx. 2 years using the CR2025 lithium battery

General

Power requirements	6 V DC
Power consumption	6.3W (camera recording) including the viewfinder
Installation	Horizontally, vertically
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	−20°C to +60°C (−4°F to +140°F)
Dimensions	Approx. 99 × 171 × 327 mm (w/h/d) (4 × $6\frac{3}{4}$ × $12\frac{7}{8}$ in.) (including the supplied lens and viewfinder)
Weight	Approx. 1.2 kg (2 lb 10 oz) recorder body only Approx. 1.7 kg (3 lb 12 oz) including the NP-55 battery cassette tape, supplied lens, viewfinder
Microphone	Electret condenser microphone, omni-directional monaural type

Accessories supplied

- Battery pack NP-55
- AC power adaptor AC-V30
- RFU adaptor RFU-89EA/ASA
- Aerial selector
- Screw driver
- Cassette tape

For details on these units, please read their instruction manuals.

- Lithium battery CR2025
- C mount cap
- Fixed focus lens (wide-angle, 9 mm/F1.4, filter diameter 43 mm, p = 0.75 mm)
- Viewfinder
- EVF attachment
- Shoulder frame
- Handgrip for the EVC-X10
- Shoulder strap for shoulder frame

Optional accessories

Carrying case LCH-X10
Battery pack NP-55, NP-77
DC pack DCP-55
Battery case EBP-55
Connecting cable VMC-910MS/920MS (2 phono to 3 phono), VMC-710M/720M (2 phono to 2 phono), VMC-262M (2 phono to 6-pin), VMC-2104M (4 phono to 21-pin)
Microphone ECM-Z200, ECM-K120
External microphone shoe SAD-100
Remote Commander RM-94
Tripod VCT-1000

Design and specifications are subject to change without notice.

Your dealer may not handle some of the above listed optional accessories. Please ask the dealer for detailed information about the optional accessories available in your country.

Note

This appliance conforms with EEC Directives 76/889 and 82/499 regarding interference suppression.

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SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING !!

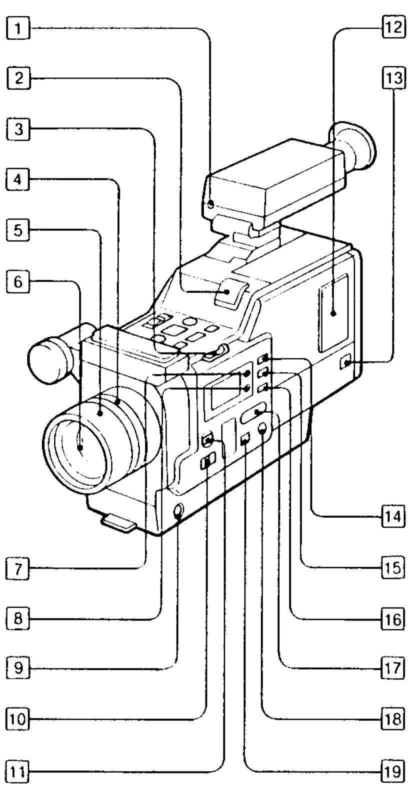
COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

SECTION 1
GENERAL

This section is extracted from instraction manual.

1-1. LOCATION AND FUNCTION OF PARTS AND CONTROLS

A-1



For details on the use of each control, refer to the pages indicated in the circle.

A-1

1 **Camera recording/battery lamp**
Lights during camera recording. It blinks when the battery is exhausted.

2 **White balance sensor**
This is the sensor for the auto white balance adjustment. Be careful not to cover it.

3 **EJECT (cassette eject) button**

4 **Iris ring**
Adjust the iris according to the contrast of the shooting subject.

5 **Focus ring**
Turn to adjust the focus pricisely.

6 **Wide-angle lens**

7 **DATA SET button**
Used to set the date and time.

8 **ADJUST button**
Used to set the date and time.

9 **VIEWFINDER connector (8-pin) ❾**
When the viewfinder is attached to the EVF attachment, connect the viewfinder cord here.

10 **AUTO LOCK switch**
Normally set to the left AUTO LOCK position (green mark).

11 **SHUTTER SPEED button**
Used to select the shutter speed.

12 **Cassette compartment**

13 **BATT (battery eject) knob**

14 **ZERO MEM (zero memory) button**
Used to memorize the counter zero point.

15 **RESET button**
Press to reset the counter to zero.

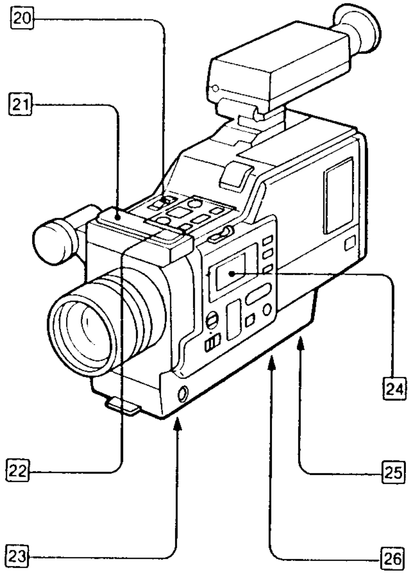
16 **SELECT button**
Select the counter, date or time display.

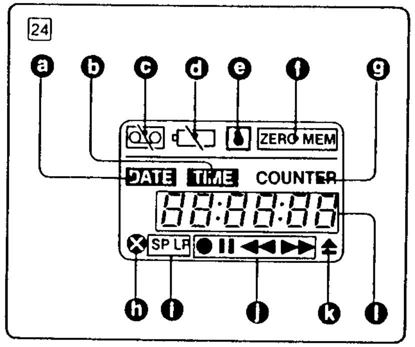
17 **EDITSEARCH button**

18 **⊖ (recording review) button**

19 **WHITE BAL (white balance) button**
Used for manual balance adjustment.

A-2





A-2

20 **POWER switch**
CAMERA: For camera recording.
PLAYER: For tape playback and tape editing.
OFF: To turn off the power.

21 **Guide rail for EVF attachment ❾**

22 **Tape transport buttons**
◀◀ FF (fast-forward), ◁ (playback), ▶▶ REW (rewind), ◀❚❚ (frame-by-frame/slow playback), ■ (stop), ❚❚ (pause)

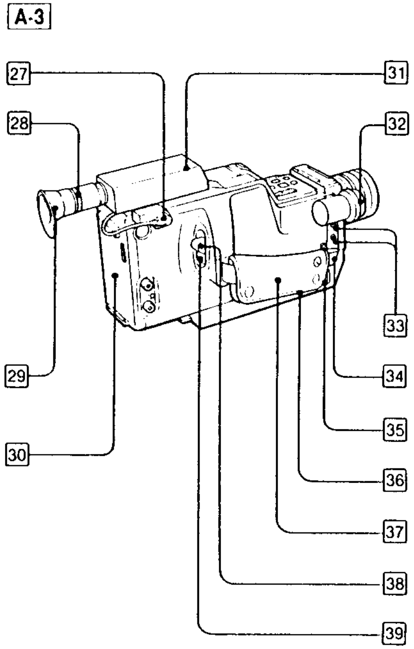
23 **Receptacle for tripod, handgrip and shoulder frame (bottom)**

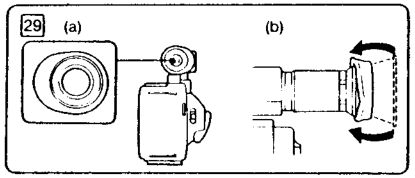
24 **Display window**
ⓐ DATE mode indicator
ⓑ TIME mode indicator
ⓒ Lights steadily when no cassette is inserted. Blinks when the tape reaches its end during camera recording or when a recording is started with a cassette with its safety tab out inserted.
ⓓ Blinks when the battery is weak.
ⓔ Blinks when moisture has condensed inside the unit.
ⓕ Displayed when the ZERO MEM button is pressed.
ⓖ COUNTER mode indicator
ⓗ Blinks when the video heads have been contaminated.
ⓘ Tape speed indicator
ⓙ Tape operation mode indicators
● (recording), ❚❚ (pause), ◀◀ (fast-forward), ▶▶ (rewind), ◀ (playback)
ⓚ Blinks when moisture has condensed on the tape, when the tape reaches its end during camera recording, etc. to indicate that the cassette should be removed.
ⓛ Tape counter, date or time indication

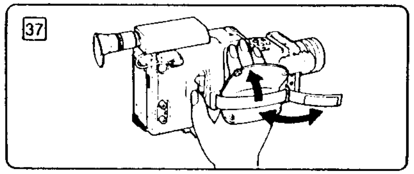
25 **Receptacle for tripod and camera brace (bottom)**

26 **Receptacle for tripod and shoulder frame (bottom)**

A-3







A-3

27 VIEWFINDER connector (8-pin) ⊙
When the viewfinder is attached to the recorder, connect the viewfinder cord here.

28 Viewfinder lens adjustment ring
Adjust to your eyesight to assure good focus. Be sure to adjust this ring when shooting for the first time.

29 Eyecup
The eyecup is attached for the right eye. For the left eye, detach the rubber eyecup and reattach it as illutrated. (a)
To view through the glasses, fold the rubber eyecup outward. (b)

30 Battery mounting surface

31 Viewfinder (detachable)
The picture being recorded or played back can be monitored in monochrome here. Data such as the function mode, caution indicators, date, time, are also displayed on the viewfinder screen.

32 Built-in microphone

33 MIC jack and DC OUT (microphone power output) jack ⊙
Connect an external microphone.
The MIC jack accepts Sony "plug-in-power" microphones and supplies power to them.

34 ◎ (earphone) jack (mini)

35 LENS connector (4-pin) ⊙
When the auto iris lens is connected, it is possible to adjust the lens iris automatically.

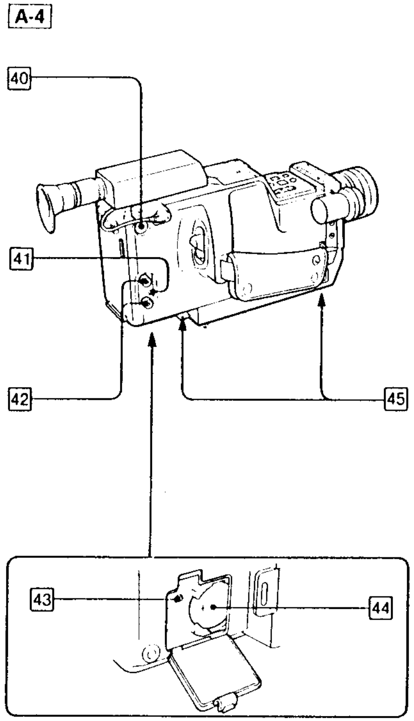
36 REMOTE connector (special mini) ⊙
Connect the cord of the handgrip supplied. The optional GP-80 Remote Commander cannot be used with this connector.

37 Grip strap
Adjust the length so that your thumb can easily manipulate the START/STOP button.

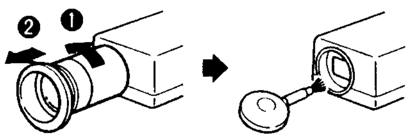
38 STANDBY switch
Before recording, slide this switch up.

39 START/STOP button
Press to start or stop camera recording.

A-4



A-5



A-4

40 REMOTE connector (5-pin)
Connect an optional Remote Commander, editing controller, etc.

41 RFU DC OUT jack (special mini)
Connect the RFU-89EA/ASA RFU adaptor, etc.

42 AUDIO OUT/VIDEO OUT jacks (phono)

43 Recording mode/EDIT switch
Switch it depending on the operating mode.

Mode	Recording	Playback	Editing
Setting	SP LP	EDIT	EDIT
Function	Recording mode switch	EDIT switch	

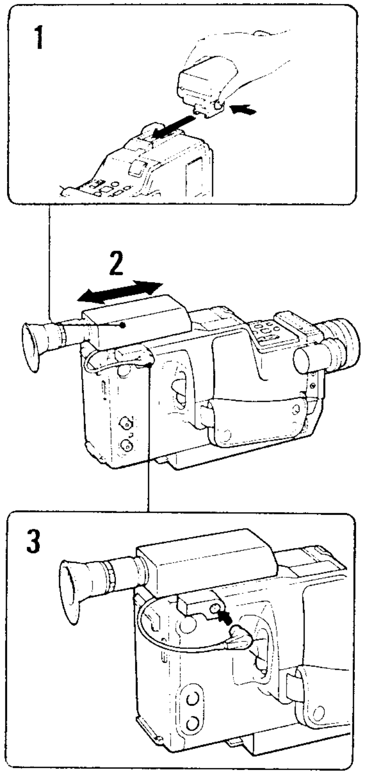
44 Lithium battery compartment

45 Hooks for shoulder strap (bottom)

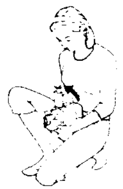
To remove dust from inside the viewfinder A-5
Detach the eyecup as illustrated and clean the surface of the Cathode ray tube with a blower.

1-2. ATTACHING THE VIEWFINDER

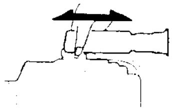
B-1



B-2



B-3



Attaching to the Video Camera Recorder B-1

1 While pressing the PUSH SLIDE button, slide the viewfinder forward.
2 Release the PUSH SLIDE button and lock the viewfinder by sliding it slightly forward or backward.
3 Connect the viewfinder cord to the VIEW FINDER connector.

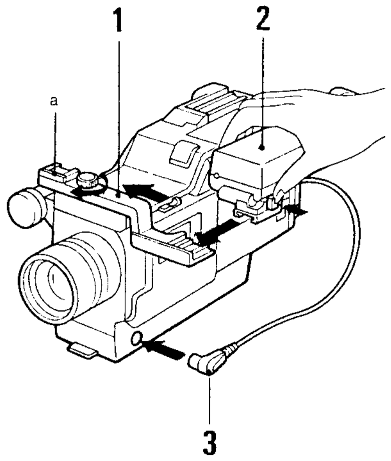
For low angle recording B-2
The viewfinder can be turned approximately 90 degrees upwards.

To change the position of the viewfinder B-3
While pressing the PUSH SLIDE button, slide the viewfinder to the appropriate position. The viewfinder can be set to one of three positions.

To adjust the brightness and focus
On the bottom of the viewfinder
☼ : Brightness control screw
⊗ : Focus control screw
Normally, there is no need to adjust these screws. Adjust only when the picture is not displayed clearly.

Note
Connect the viewfinder to one of the 2 VIEW FINDER connectors.

C



Attaching to the EVF Attachment

When the EVF attachment is attached to the video camera recorder, the viewfinder can be set to the left side of the recorder. C

1 Slide the EVF attachment on the guide rail of the recorder and tighten the knob.
2 While pressing the PUSH SLIDE button, slide the viewfinder on the guide rail of the EVF attachment.
3 Connect the viewfinder cord to the VIEW FINDER connector.

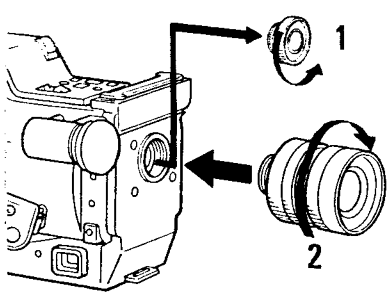
To view with your left eye
Pull the EVF attachment to the left side and turn the viewfinder up to the appropriate angle.

To view through the glasses
Turn the viewfinder up to the appropriate angle.

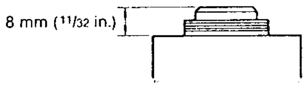
To use an optional external microphone or video light
Attach them to the accessory shoe (a) on the EVF attachment.

1-3. ATTACHING THE LENS

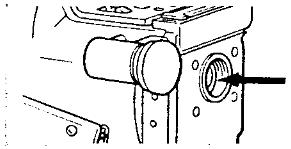
D-1



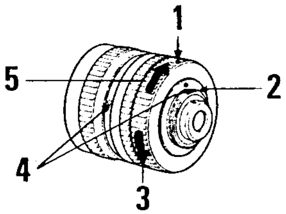
D-2



D-3



D-4



Attaching the Supplied Lens D-1

1 Remove the C mount cap from the recorder.
2 Attach the lens firmly.
For easy attachment, turn the lens slightly in a counterclockwise direction and then clockwise.

Notes

- Use a C mount lens with a projection from the lens mount of less than 8 mm (11/32 in.). D-2
- When the recorder is not in use, attach the C mount cap to the recorder and the lens cap to the lens.
- Never touch the dust filter. D-3
- To clean the dust filter, use the optional KK-50/80C cleaning kit.

To set the ○ mark on the lens to the center D-4

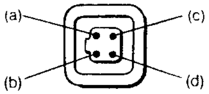
1 Attach the lens to the recorder and set the mark to the center position on the lens using a pencil or similar instrument.
2 Remove the lens and also set the mark to the center position on the flange back face.
3 Turn the ring for the thread counterclockwise and loosen it. (There is no problem if the focus ring and iris ring are turned.)
4 Align the ○ mark with the mark on the flange back face.
5 Turn the ring for the thread clockwise and tighten it.

The standard C mount is used to attach the EVC-X10 video camera recorder and the lens.
Standard C mount:

Thread diameter	25.4 mm (1 inch)
Flange back face	17.526 mm
Pitch	32 threads per inch (0.794 mm)

For the first time, a C mount has been used for 16 mm cinecameras, and at present its main use is for institutional cameras.
Aluminum die casting is used for the frame of the EVC-X10 so that the 1 kg (2 lb 3 oz) high power zoom lens can be attached.

D-5



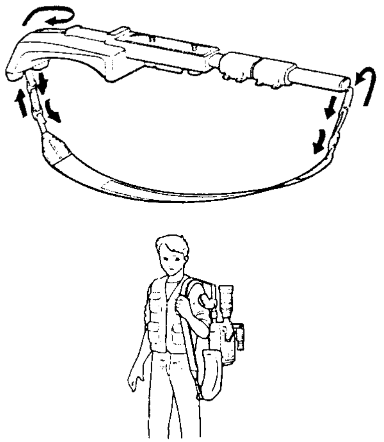
LENS Connector

When a lens with the auto iris function is used, connect the lens cord here.
This LENS connector conforms to the ITV standard.

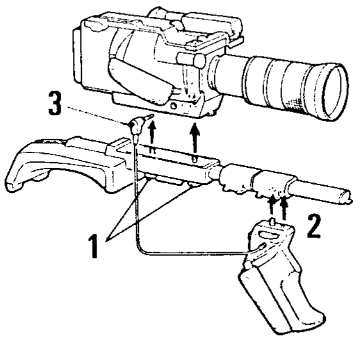
Specifications of the LENS connector D-5:
(a) DC 11V ±0.5V
400 mA (max.)
(b) Video signal 1Vp-p
(c) Ground
(d) Not in use

1-4. ATTACHING THE SHOULDER FRAME AND THE HANDGRIP

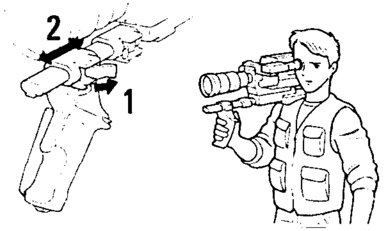
E-1



E-2



E-3



When the telephoto lens is attached to the video camera recorder, for stable shooting, attach the supplied shoulder frame and handgrip.
The function of the START/STOP button on the handgrip is the same as that on the recorder.

Preparation

- Attach the shoulder strap to the shoulder frame as illustrated. E-1
  The recorder can be carried on your shoulder.
- Attach the viewfinder to the video camera recorder by using the EVF attachment.
- Adjust the handgrip strap so that your thumb can easily manipulate the START/STOP button.

Attaching the shoulder frame and the handgrip E-2

1. Tighten the two knobs to attach the shoulder frame to the recorder.
2. Attach the handgrip to the front attachment of the shoulder frame.
3. Connect the cord of the handgrip to the REMOTE connector.

The handgrip can also be attached directly to the recorder.

To adjust the position of the grip E-3

1. Loosen the buckle of the attachment.
2. Slide the attachment so that you can hold the recorder as shown in the illustration.

Notes

- To turn the recorder on or off with the STANDBY switch on the handgrip, set the STANDBY switch on the recorder to the off position.
- The total weight (excluding the lens) of the video camera recorder, viewfinder, NP-77 battery pack, shoulder frame and handgrip is approximately 2.9 kg (6 lbs 6 oz).
- An optional video light attachment can be attached to the back attachment on the shoulder frame.

1-5. POWER SOURCES

Selection of Power Sources

This manual shows the operations on one of the following power sources.

		Power source	Accessory to be used
Place	Outdoors	Battery pack	Battery pack NP-55 or NP-77 Battery case EBP-55
	Indoors	House current	AC power adaptor AC-V30
	In the car	12 V or 24 V car battery	DC pack DCP-55

Notes on power source

- Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted cassette tape. If this is done by accident, supply the power again immediately and turn on the power switch.
- Be careful not to let any metal object touched on the metal part on the battery pack or AC power adaptor. When the battery pack is not be used, keep it in its case.

Optional Accessories for Charging
BCA-70 or BCA-80 battery charge adaptor, ACP-88 AC pack and NPA-55 battery adaptor
For charging, insert an NP-55 into the NPA-55.

1-6. USE OF AN EXTERNAL MICROPHONE

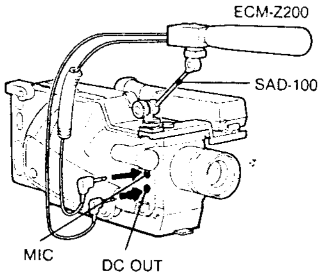
The built-in microphone picks up sounds equally from all directions (omni-directional, monaural type).
By using an optional microphone ECM-Z200, ECM-K120, etc., you can enjoy more efficient audio recording.
First of all, attach the EVF attachment to the recorder. (See page 9.)

ECM-Z200 S-1
This microphone can zoom the sound as the lever is slid.
For attachment, the optional SAD-100 external microphone shoe is required.

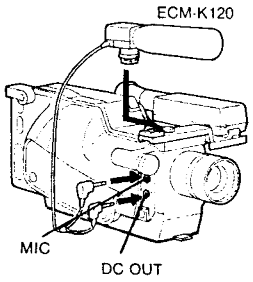
ECM-K120 S-2
This microphone can pick up sound in three zones and switch from zone to zone as the selector is set.

Note
The built-in microphone will not operate when an optional microphone is connected to the MIC jack.

S-1



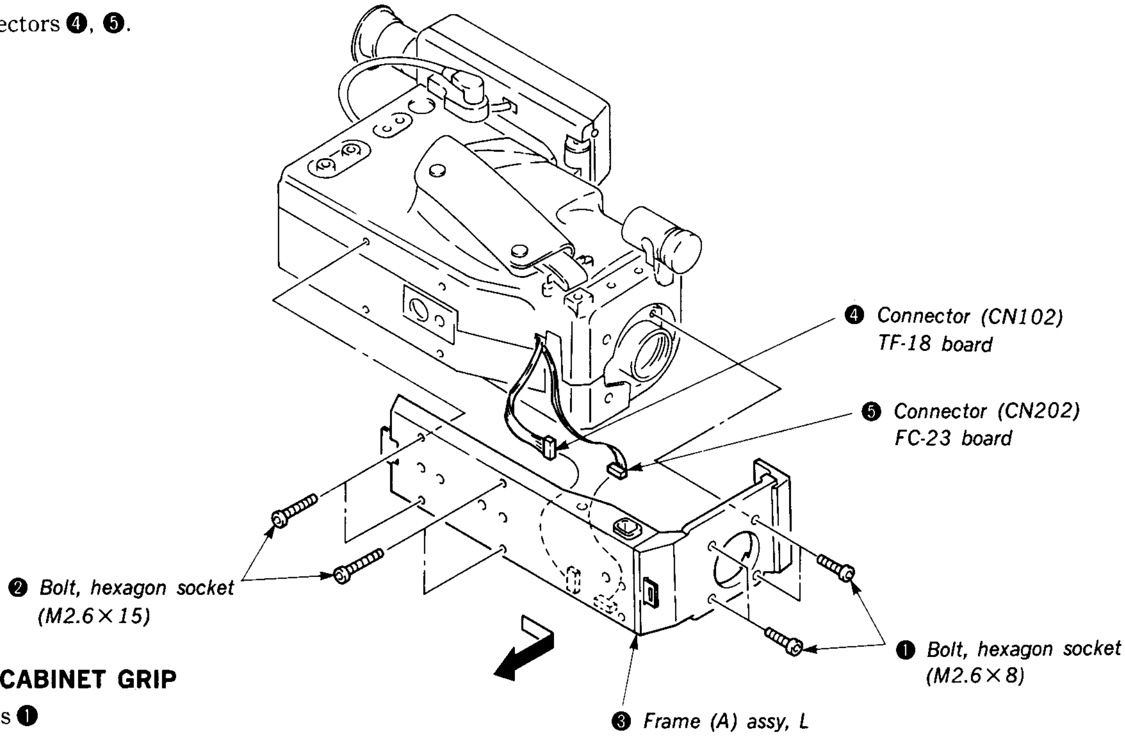
S-2



SECTION 2
DISASSEMBLY

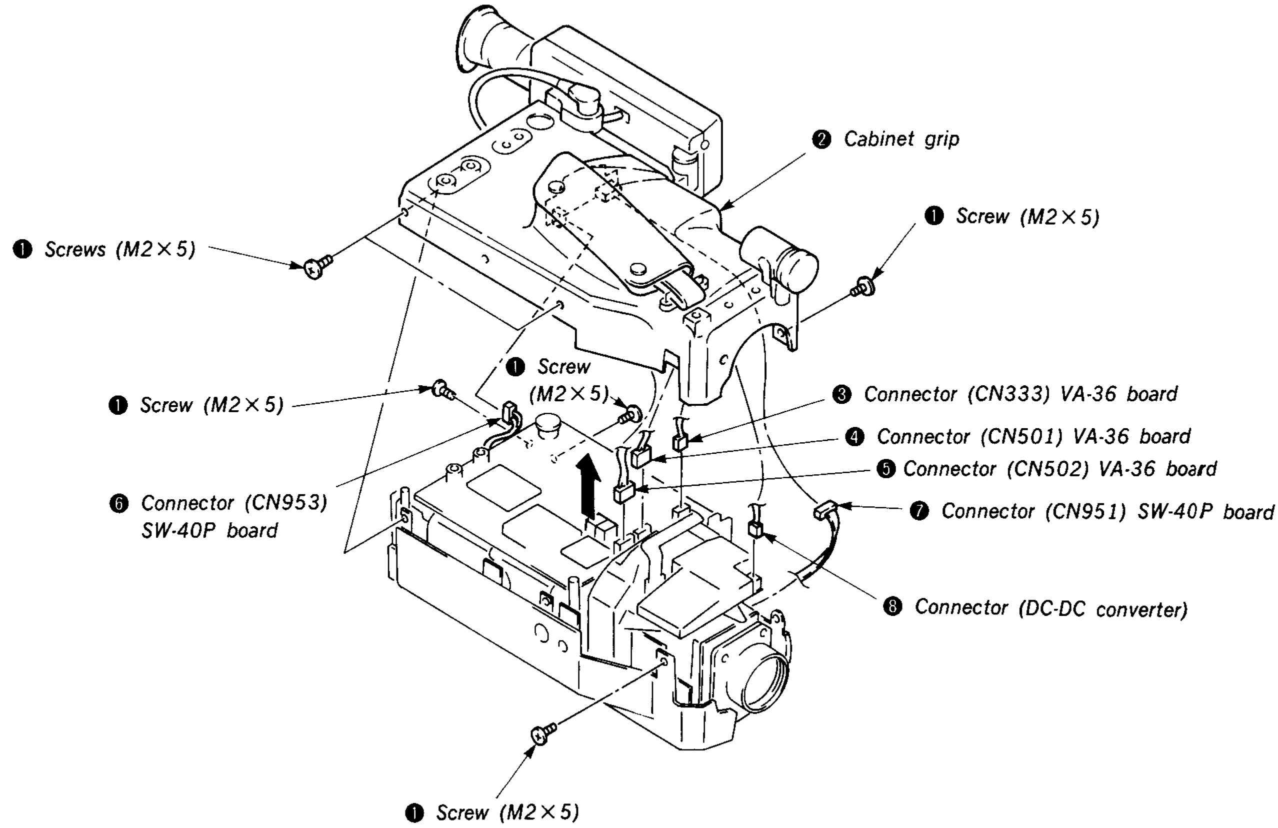
2-1-1. REMOVAL OF FRAME (A) ASSY, L

1) Remove four bolt, hexagon socket ❶.
2) Remove four bolt, hexagon socket ❷.
3) Remove frame (A) assy, L ❸ in the direction of the arrow.
4) Remove two connectors ❹, ❺.


❹ Connector (CN102)
TF-18 board
❺ Connector (CN202)
FC-23 board
❷ Bolt, hexagon socket
(M2.6×15)
❶ Bolt, hexagon socket
(M2.6×8)
❸ Frame (A) assy, L

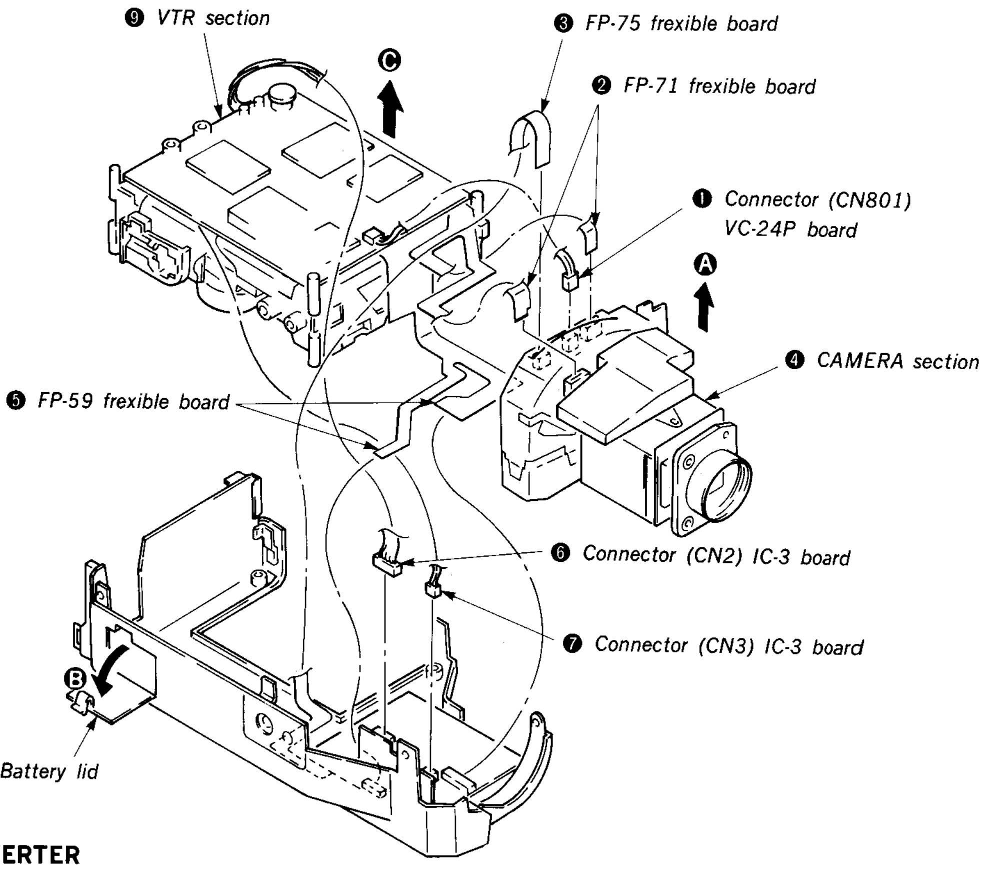
2-2. REMOVAL OF CABINET GRIP

1) Remove six screws ❶
2) Remove cabinet grip ❷ in the direction of the arrow.
3) Remove six connectors ❸, ❹, ❺, ❻, ❼, ❽.


❷ Cabinet grip
❶ Screw (M2×5)
❶ Screws (M2×5)
❶ Screw
(M2×5)
❶ Screw (M2×5)
❸ Connector (CN333) VA-36 board
❹ Connector (CN501) VA-36 board
❺ Connector (CN502) VA-36 board
❻ Connector (CN953)
SW-40P board
❼ Connector (CN951) SW-40P board
❽ Connector (DC-DC converter)
❶ Screw (M2×5)

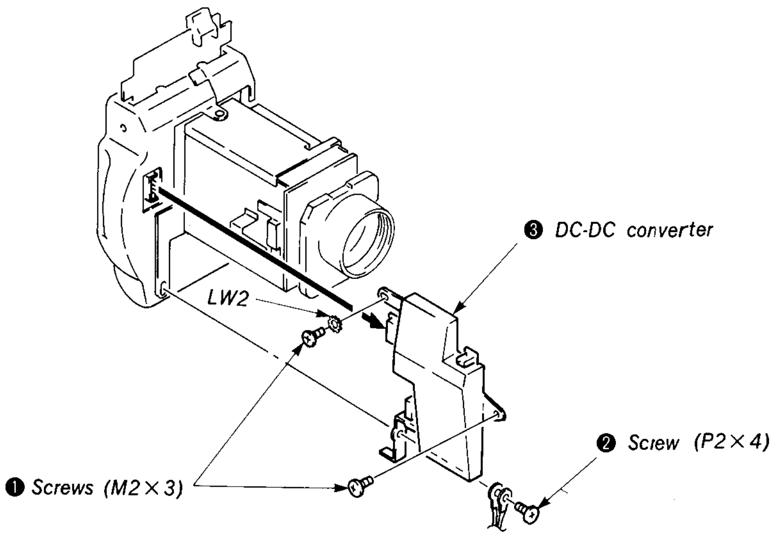
2-7. SEPARATION OF CAMERA SECTION AND VTR SECTION

1) Remove a connector ❶.
2) Remove FP-71 flexible board ❷.
3) Remove FP-75 flexible board ❸.
4) Remove CAMERA section ❹ in the direction of the arrow Ⓐ.
5) Remove FP-59 flexible board ❺.
6) Remove two connectors ❻, ❼.
7) Open battery lid ❽ in the direction of the arrow Ⓑ.
8) RemoveVTR section ❾ in the direction of the arrow Ⓒ.


❾ VTR section
❸ FP-75 frexible board
Ⓒ
❷ FP-71 frexible board
❶ Connector (CN801)
VC-24P board
Ⓐ
❹ CAMERA section
❺ FP-59 frexible board
❻ Connector (CN2) IC-3 board
❼ Connector (CN3) IC-3 board
Ⓑ
❽ Battery lid

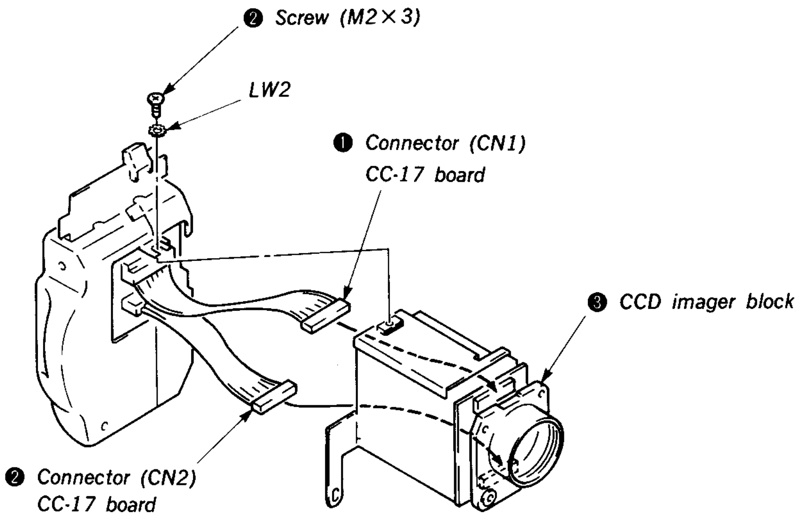
2-10. REMOVAL OF DC-DC CONVERTER

1) Remove two screws ❶, and LW2.
2) Slide DC-DC converter ❷ in the direction of the arrow, and then remove it.


❸ DC-DC converter
LW2
❷ Screw (P2×4)
❶ Screws (M2×3)

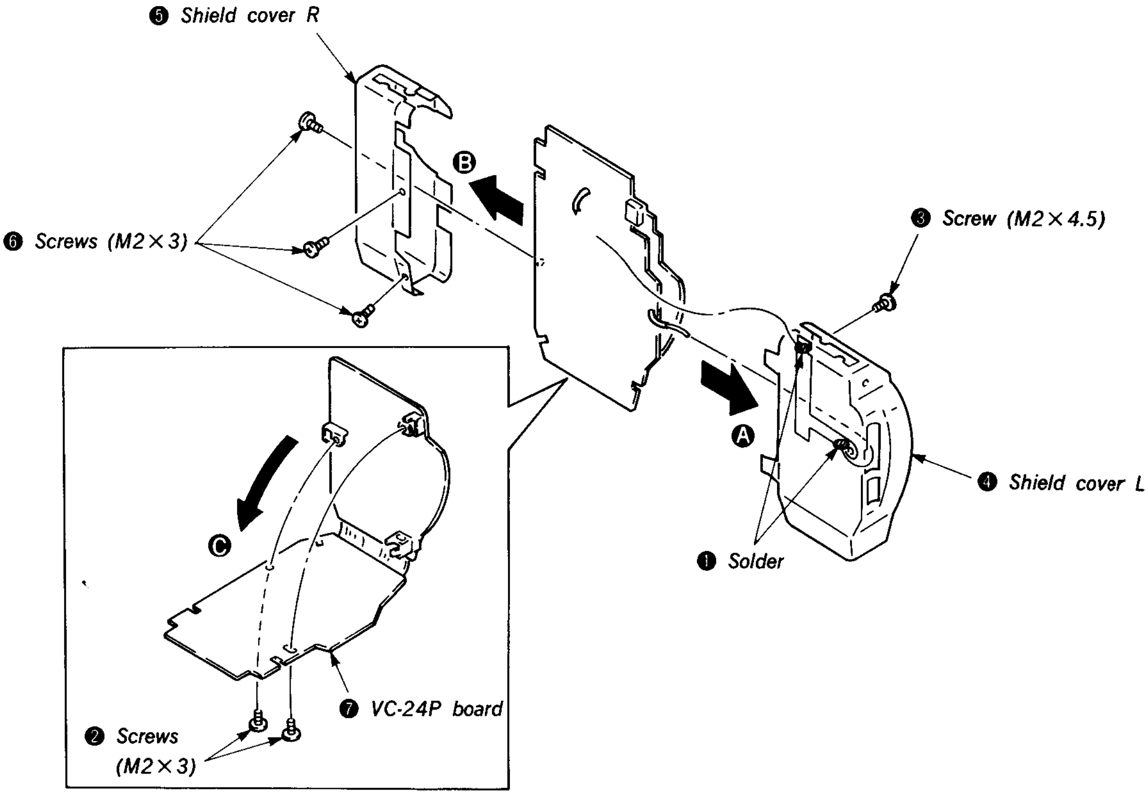
2-10-1. REMOVAL OF CCD IMAGER BLOCK

1) Remove two connectors ❶, ❷.
2) Remove a screw ❷, and LW2.
3) Remove CCD imager block ❸.


❷ Screw (M2×3)
LW2
❶ Connector (CN1)
CC-17 board
❸ CCD imager block
❷ Connector (CN2)
CC-17 board

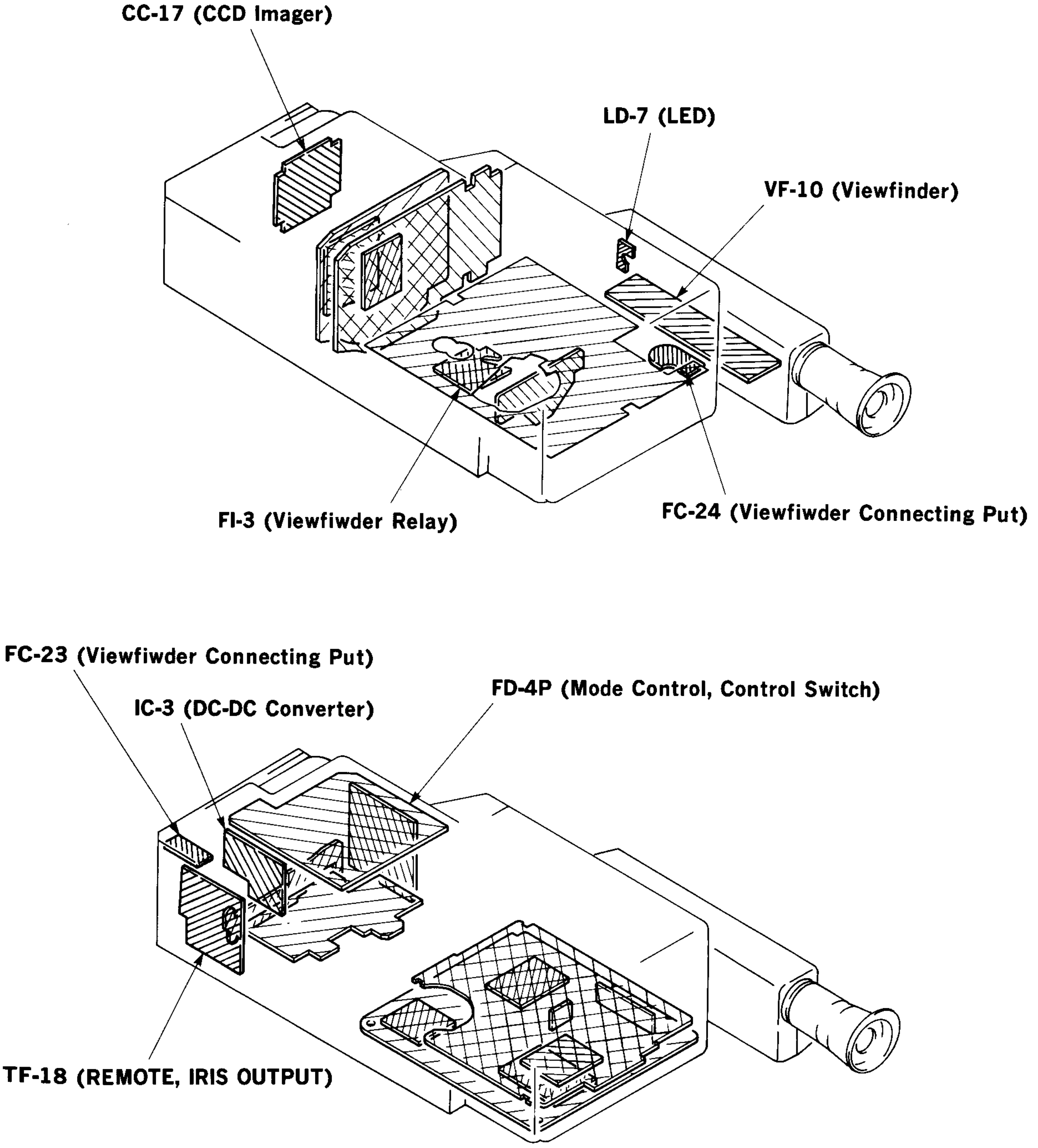
2-11. OPENING OF VC-24P BOARD

1) Unsolder ❶ two portions.
2) Remove three screws ❷.
3) Remove a screw ❸.
4) Remove shield cover L ❹ and shield cover R ❺ in the direction of the arrow🅐, 🅑.
5) Remove two screws ❻ and open VC-24P board ❼ in the direction of the arrow🅒.


❺ Shield cover R
🅑
❻ Screws (M2×3)
❸ Screw (M2×4.5)
🅐
❹ Shield cover L
❶ Solder
🅒
❼ VC-24P board
❷ Screws
(M2×3)

SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION


CC-17 (CCD Imager)
LD-7 (LED)
VF-10 (Viewfinder)
FI-3 (Viewfiwder Relay)
FC-24 (Viewfiwder Connecting Put)
FC-23 (Viewfiwder Connecting Put)
IC-3 (DC-DC Converter)
FD-4P (Mode Control, Control Switch)
TF-18 (REMOTE, IRIS OUTPUT)

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For printed wiring board

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side. *
- Circled numbers refer to waveforms.

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the pattern face are indicated. *

For schematic diagram

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
- Chip resistor are 1/10W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- ☐ : panel designation.
- △ : internal component.
- ☐ : adjustment for repair. *
- ━━ : B + Line. *
- ━ ━ ━ : B – Line. *
- ⇨ : IN/OUT direction of (+, –) B line. *
- Circled numbers refer to waveforms. *

〔SERVO/SYSTEM CONTROL, MODE CONTROL〕

- Voltages are dc between ground and measurement points. *
- Readings are taken with a color-bar signal input. *
  (Remove the W331 on VA-36 board. *
  Input point: Pin① of W331 on VA-36 board.
  (75Ω teminated))
- Readings are taken with a digital multimeter (DC10MΩ). *
- Voltage variations may be noted due to normal production tolerances. *

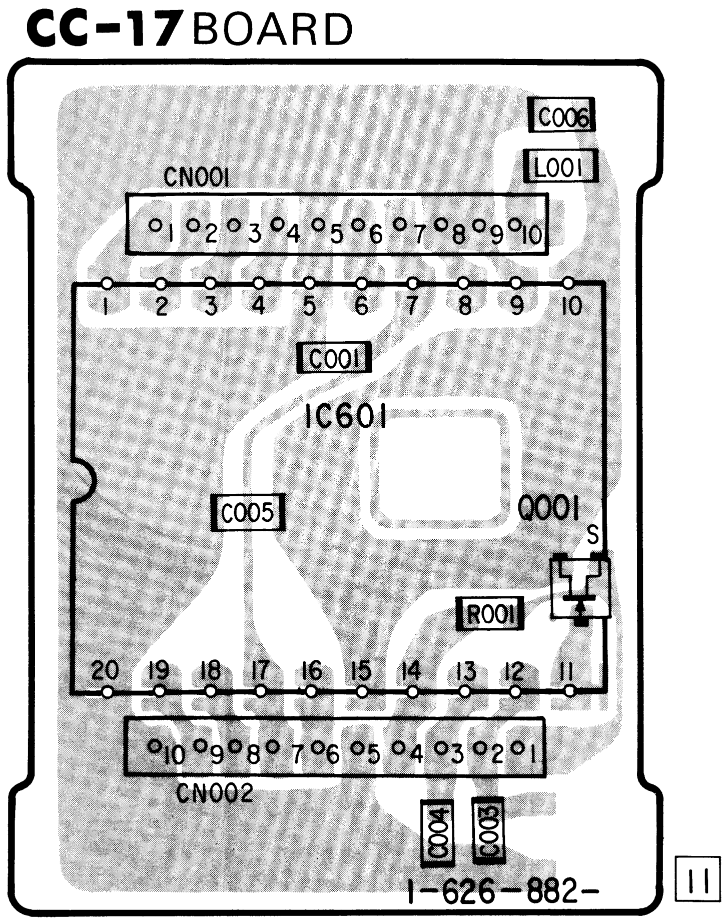
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

* : indicated by the color red.

CC-17 (CCD IMAGER) PRINTED WIRING BOARD

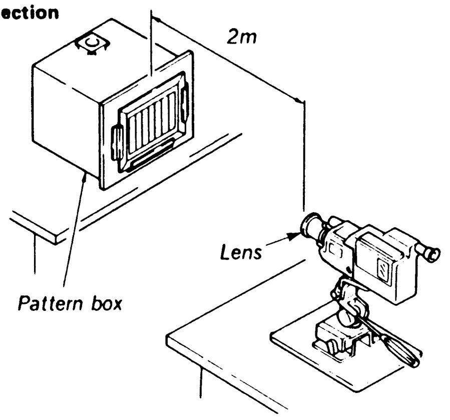
— Ref. No. CC-17 BOARD : 7,000 series —


CC-17 BOARD
C006
L001
CN001
1 2 3 4 5 6 7 8 9 10
C001
IC601
C005
Q001
S
R001
20 19 18 17 16 15 14 13 12 11
CN002
C004
C003
1-626-882-
11

〔CAMERA, VIEWFINDER〕

- Voltage and waveform measuring conditions: *
  (1) Sample object: Pattern box color bars. *
  (2) Voltage values: Relative to ground, measured witn a DC digital multimeter (impedance 10M-ohm or more). *

1. Connection


2m
Lens
Pattern box

2. Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.

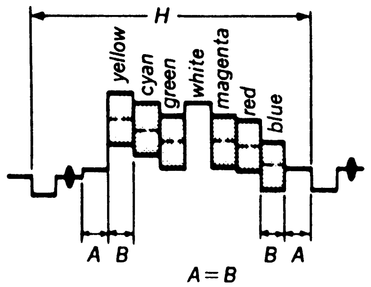


Fig. a Camera output waveform of TP801 on VC-24P board

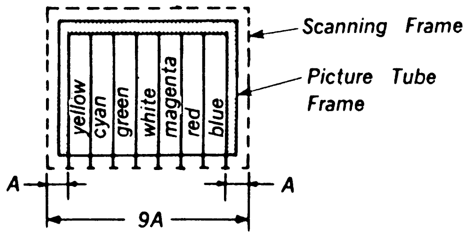
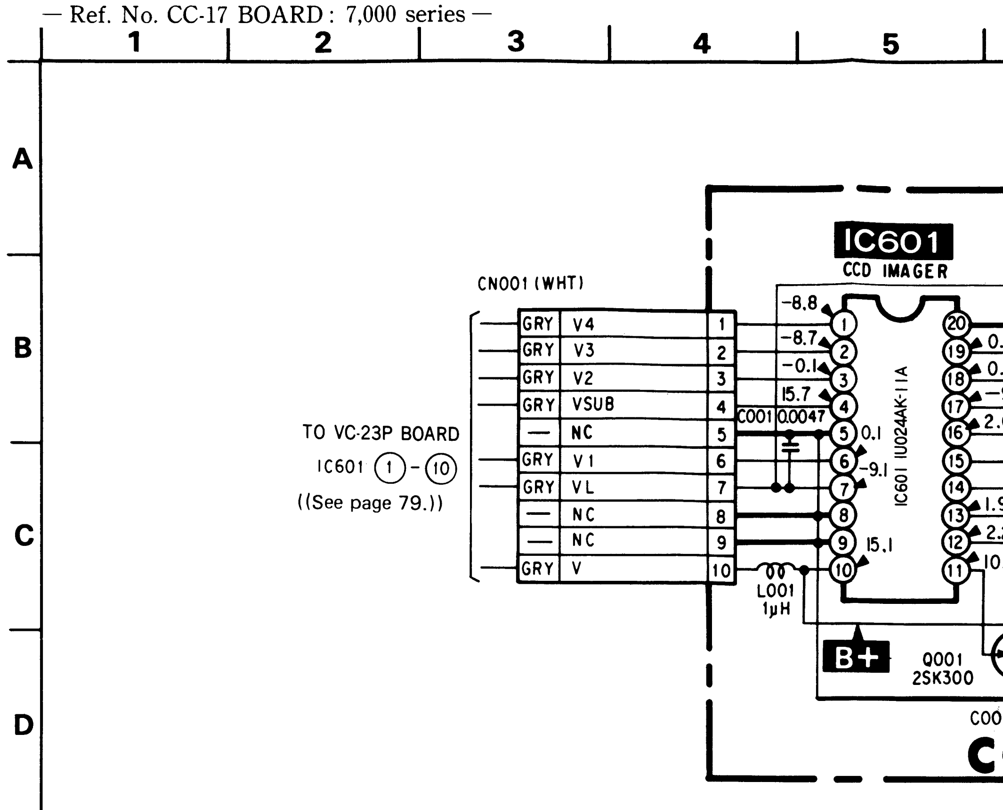

Scanning Frame
Picture Tube Frame
yellow
cyan
green
white
magenta
red
blue
A
A
9A

Fig. b Picture of TV monitor screen

CC-17 (CCD IMAGER) SCHEMATIC DIAGRAM

— Ref. No. CC-17 BOARD : 7,000 series —


1
2
3
4
5
A
B
C
D
CN001 (WHT)
TO VC-23P BOARD
IC601 ①-⑩
((See page 79.))
GRY V4
GRY V3
GRY V2
GRY VSUB
— NC
GRY V1
GRY VL
— NC
— NC
GRY V
1
2
3
4
5
6
7
8
9
10
IC601
CCD IMAGER
IC601 IU024AK-11A
-8.8
-8.7
-0.1
15.7
0.1
-9.1
15.1
C001 0.0047
L001 1μH
B+
Q001 2SK300

In EVC-X10, a harness have been added as follows by

CC-17 board is mounted on VC-23P board in CCD-V90

	CCD-V90E
CV-16	————
CV-17	————
W602	CCD OUT (VC-23P) ——— CCD IN (VC-24P)

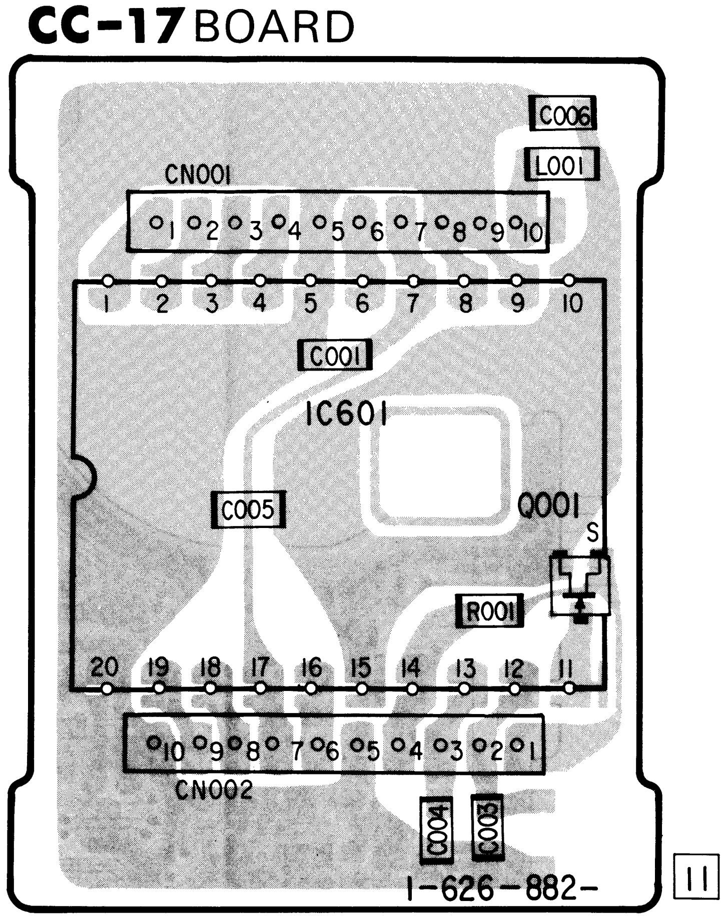
- Number of page on the board shows circuit diagram.
  ( )mark : refer to this service manual.
  (( ))mark : refer to CCD-V90E service manual.

PRECAUTION FOR REPLACEMENT OF CCD IMAGER BLOCK

- After the CCD imager block has been replaced, perform the entir
- CCD imager is structurally in case of being broken down by static e
  it as well as MOS IC. Moreover, care should be taken for dust not
  for strong light not to get into there.

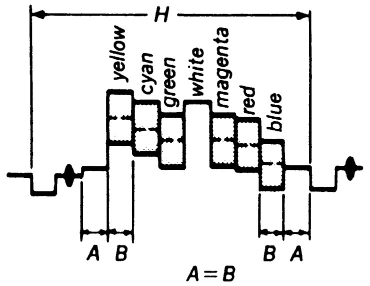
CC-17 (CCD IMAGER) PRINTED WIRING BOARD

— Ref. No. CC-17 BOARD : 7,000 series —


CC-17 BOARD
C006
L001
CN001
1 2 3 4 5 6 7 8 9 10
C001
IC601
C005
Q001
S
R001
20 19 18 17 16 15 14 13 12 11
10 9 8 7 6 5 4 3 2 1
CN002
C004
C003
1-626-882-
11

:*
s.*
easured witn
er (impedance

2. **Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.**


H
yellow
cyan
green
white
magenta
red
blue
A B
B A

A=B

Fig. a Camera output waveform of TP801 on VC-24P board

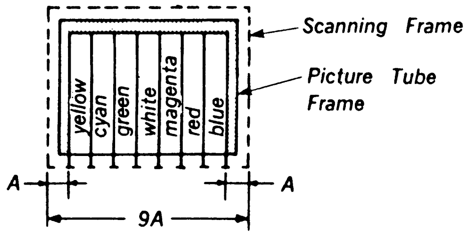
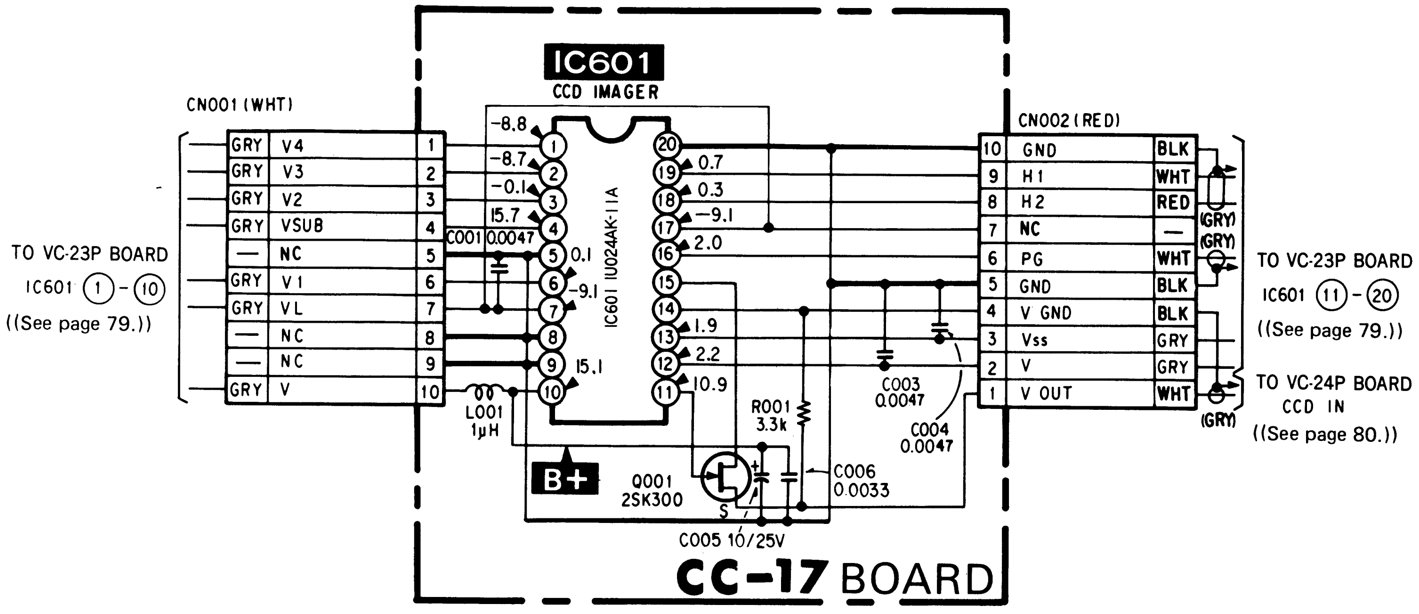

Scanning Frame
Picture Tube Frame
yellow
cyan
green
white
magenta
red
blue
A
A
9A

Fig. b Picture of TV monitor screen

CC-17 (CCD IMAGER) SCHEMATIC DIAGRAM

— Ref. No. CC-17 BOARD : 7,000 series —


1 2 3 4 5 6 7 8 9 10 11
A B C D E F G H I
IC601
CCD IMAGER
IC601 IU024AK-11A
CN001 (WHT)
GRY V4 1
GRY V3 2
GRY V2 3
GRY VSUB 4
— NC 5
GRY V1 6
GRY VL 7
— NC 8
— NC 9
GRY V 10
TO VC-23P BOARD
IC601 ①-⑩
((See page 79.))
-8.8
-8.7
-0.1
15.7
0.1
-9.1
15.1
0.7
0.3
-9.1
2.0
1.9
2.2
10.9
C001 0.0047
L001 1μH
B+
Q001 2SK300
S
C005 10/25V
R001 3.3k
C006 0.0033
C003 0.0047
C004 0.0047
CN002 (RED)
10 GND BLK
9 H1 WHT
8 H2 RED
7 NC —
6 PG WHT
5 GND BLK
4 V GND BLK
3 Vss GRY
2 V GRY
1 V OUT WHT
(GRY)
(GRY)
(GRY)
TO VC-23P BOARD
IC601 ⑪-⑳
((See page 79.))
TO VC-24P BOARD
CCD IN
((See page 80.))
CC-17 BOARD

In EVC-X10, a harness have been added as follows by mounting CCD imager on CC-17 board is mounted on VC-23P board in CCD-V90E.

	CCD-V90E	**EVC-X10**
CV-16	————————	IC601①-⑩ (VC-23P) ——— CN001 (CC-17)
CV-17	————————	IC601⑪-⑳ (VC-23P) ——— CN002 (CC-17)
W602	CCD OUT (VC-23P) ——— CCD IN (VC-24P)	————————

- Number of page on the board shows circuit diagram.

( )mark : refer to this service manual.
(( ))mark : refer to CCD-V90E service manual.

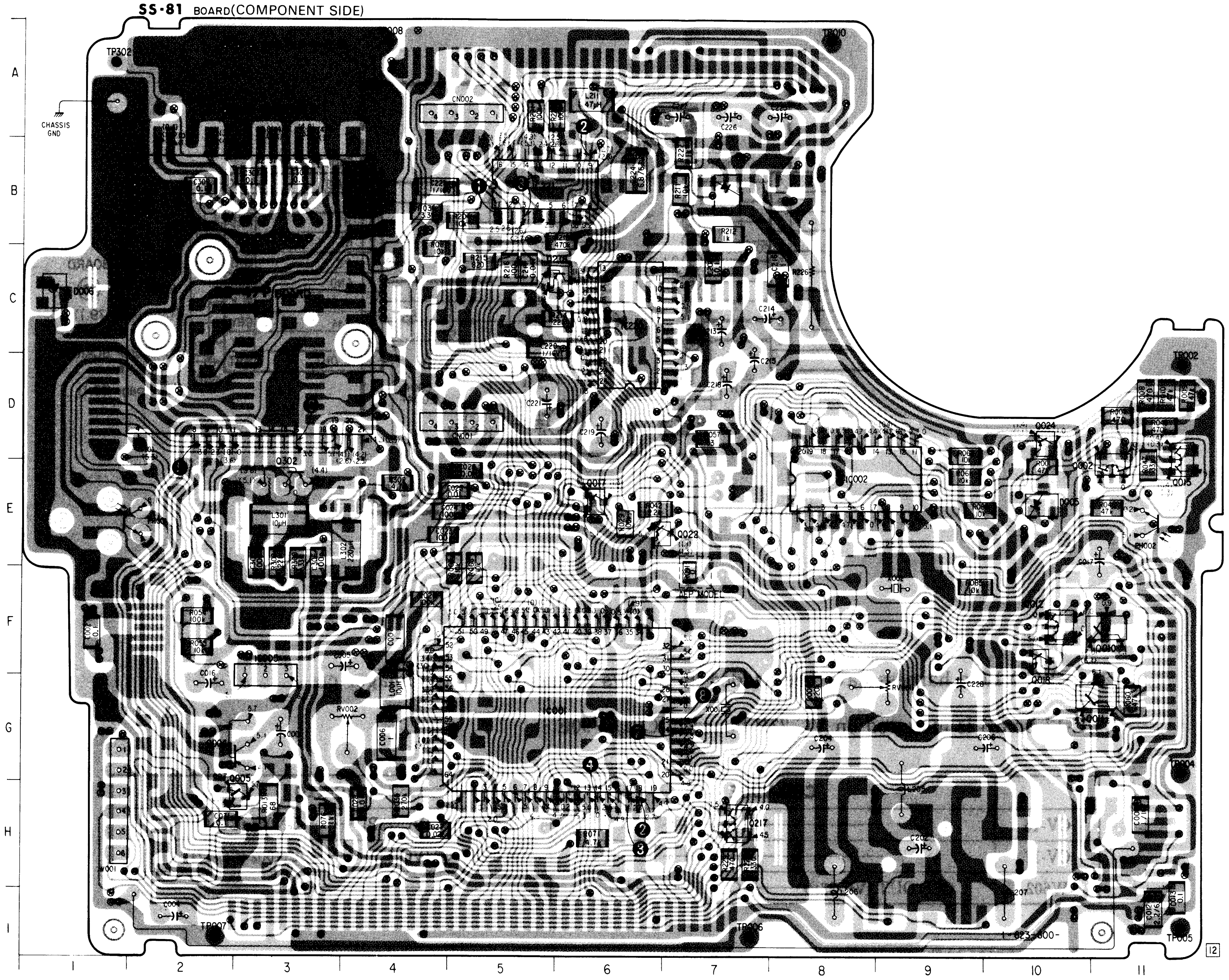
PRECAUTION FOR REPLACEMENT OF CCD IMAGER BLOCK

- After the CCD imager block has been replaced, perform the entire adjustments of the camera section.
- CCD imager is structurally in case of being broken down by static electricity. For this reason, take care to handle it as well as MOS IC. Moreover, care should be taken for dust not to be stuck on the light reseiving section and for strong light not to get into there.

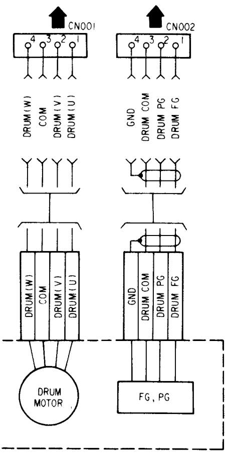
SS-81 (SERVO, SYSTEM CONTROL, REC/PB AMP) PRINTED WIRING BOARD

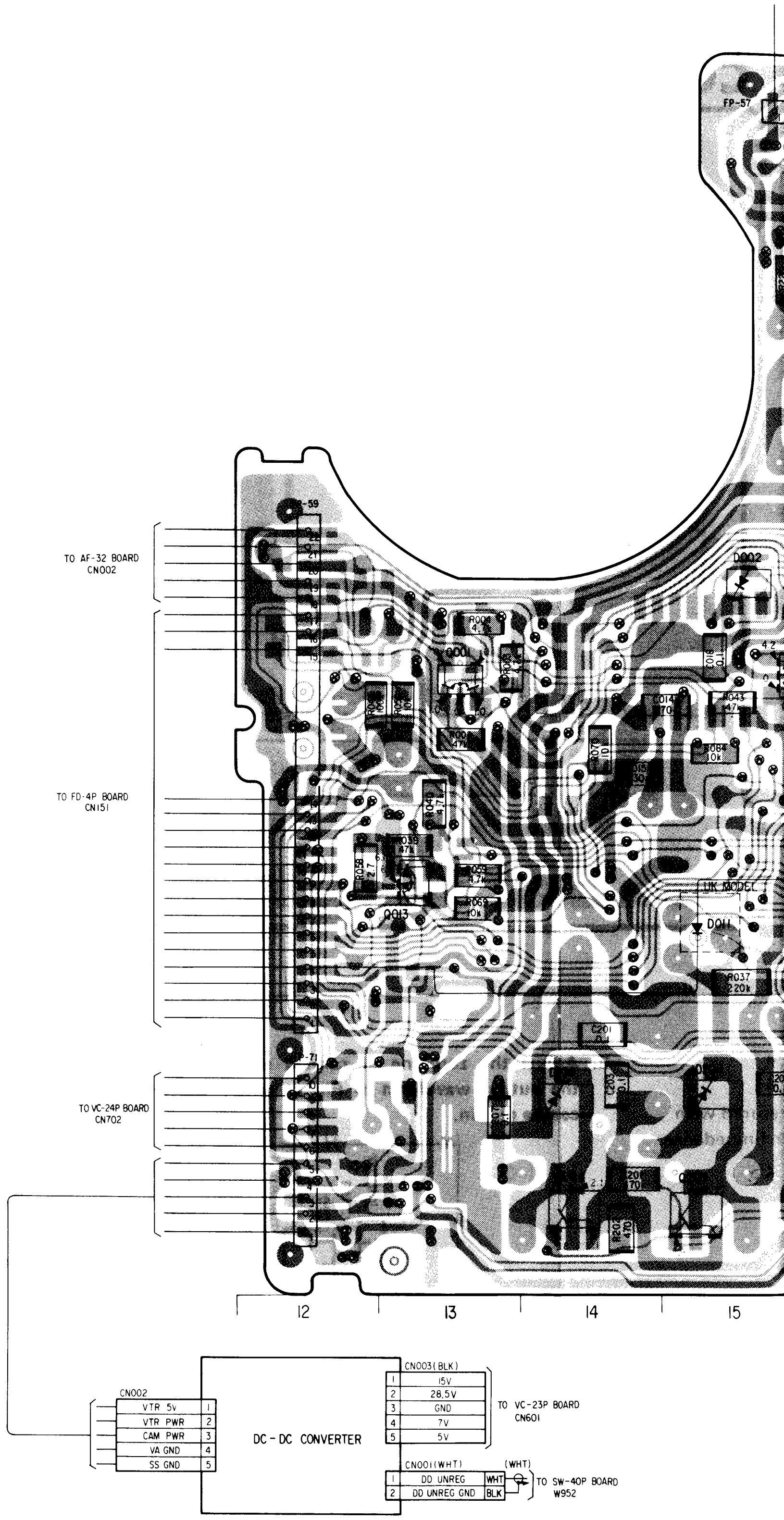
— Ref. No. SS-81 BOARD: 1,000 series —

CN001	D-5
CN002	A-5
CN003	F-22
CN301	B-21
CN302	D-22
D001	B-20
D002	D-16
D003	H-18
D004	H-18
D005	E-10
D006	C-1
D007	C-19
D008	E-17
D009	D-17
D208	H-16
D209	H-15
D223	B-7
FP-57	A-16
FP-59	D-12
FP-60	I-19
FP-71	G-12
IC001	G-5
IC002	E-8
IC003	D-21
IC004	H-22
IC005	F-3
IC220	C-6
IC221	B-5
IC222	B-17
Q001	E-14
Q002	D-11
Q004	G-3
Q005	H-3
Q006	C-22
Q007	C-21
Q009	G-20
Q010	F-11
Q011	G-11
Q012	F-10
Q013	F-13
Q014	C-19
Q015	D-11
Q016	F-22
Q017	E-6
Q018	F-10
Q019	F-17
Q020	H-21
Q021	H-21
Q022	E-6
Q023	F-17
Q024	D-10
Q025	E-16
Q203	I-16
Q204	I-15
Q216	F-18
Q217	H-7
Q218	C-6
Q219	C-18
Q302	E-3
Q303	E-21
PH001	E-2
PH002	E-11
RV001	G-9
RV002	G-4
TP002	D-11
TP004	G-11
TP007	I-2
TP008	A-4
TP010	A-8
TP302	A-1
W001	H-1

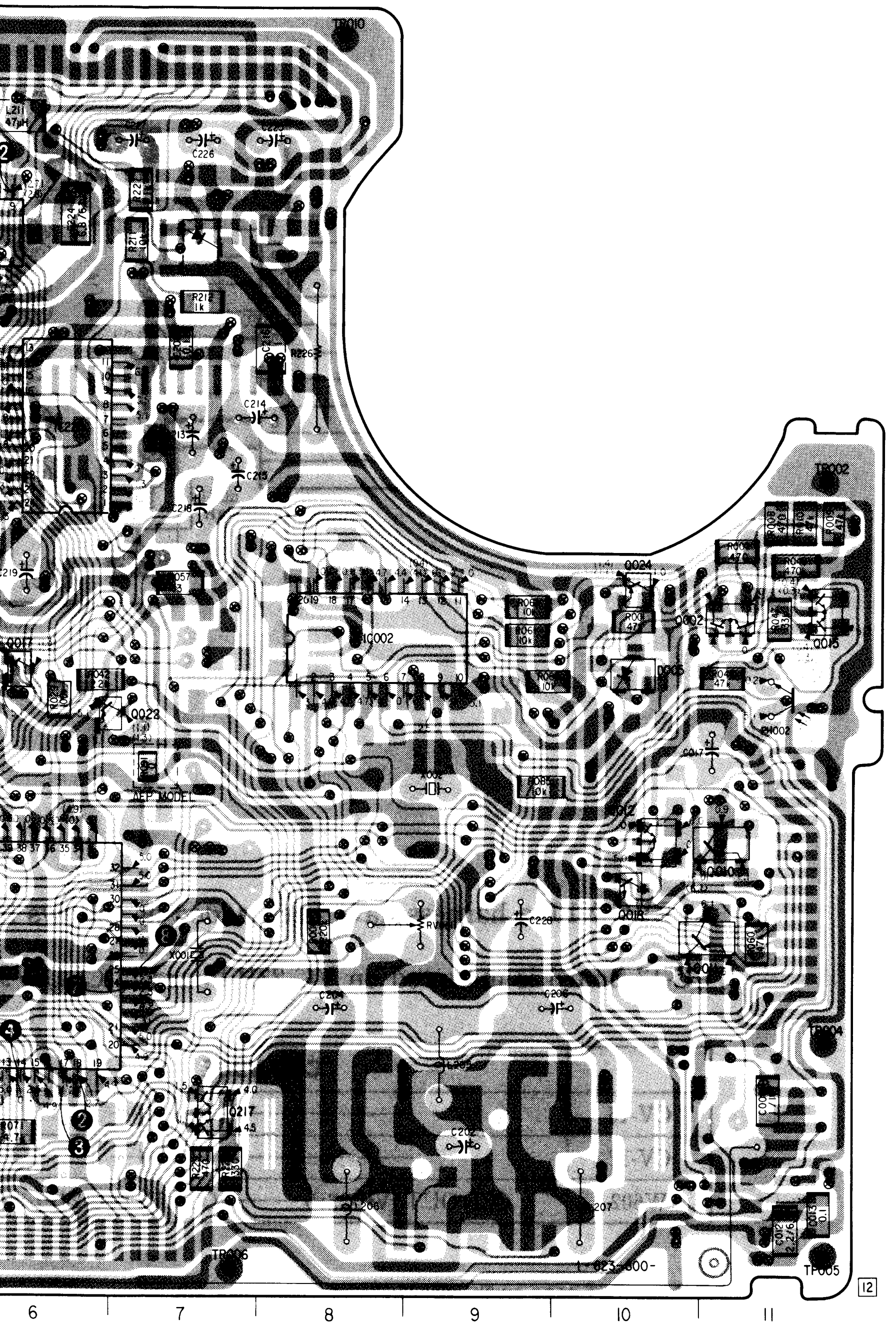

SS-81 BOARD(COMPONENT SIDE)
CHASSIS GND
TP302
TP010
TP002
TP004
TP005
TP006
TP007
CN002
CN001
IC002
IC001
Q024
Q002
Q001
Q302
Q217
L301 10μH
RV002
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8
9
10
11
12
-023-600-

Marked ✱ is not able to measure the voltage at its position.


CN001
CN002
4
3
2
1
DRUM(W)
COM
DRUM(V)
DRUM(U)
GND
DRUM COM
DRUM PG
DRUM FG
DRUM MOTOR
FG, PG

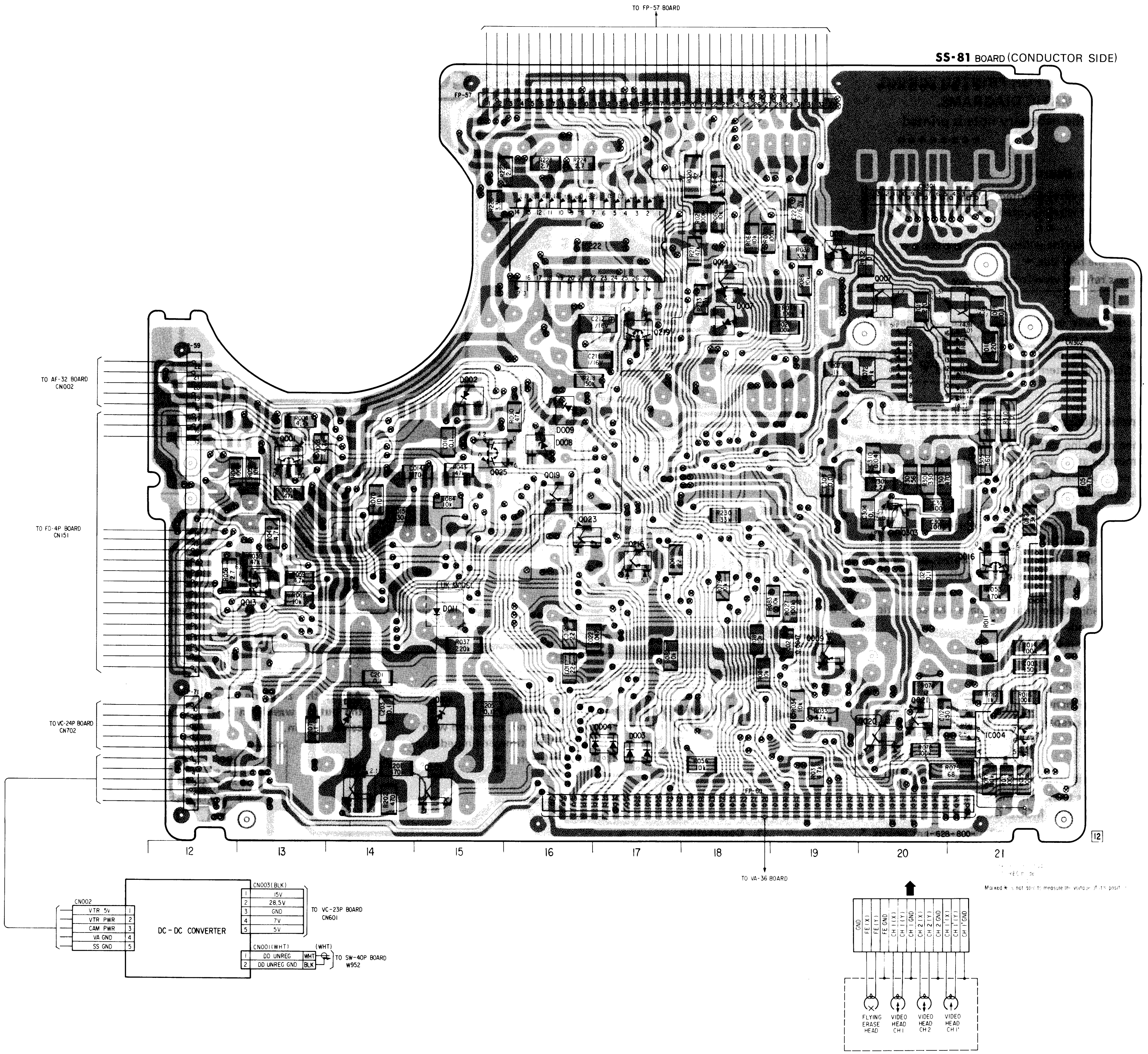

FP-57
FP-59
FP-71
TO AF-32 BOARD CN002
TO FD-4P BOARD CN151
TO VC-24P BOARD CN702
D002
Q001
Q013
D011
UK MODEL
12
13
14
15
CN002
VTR 5V
VTR PWR
CAM PWR
VA GND
SS GND
DC - DC CONVERTER
CN003(BLK)
15V
28.5V
GND
7V
5V
TO VC-23P BOARD CN601
CN001(WHT)
DD UNREG
DD UNREG GND
WHT
BLK
(WHT)
TO SW-40P BOARD W952

G BOARD


TP010
TP002
TP004
TP005
TP006
IC002
1-623-800-
12
6
7
8
9
10
11

Marked ★ is not able to measure the voltage of this position.

SS-81 BOARD (CONDUCTOR SIDE)

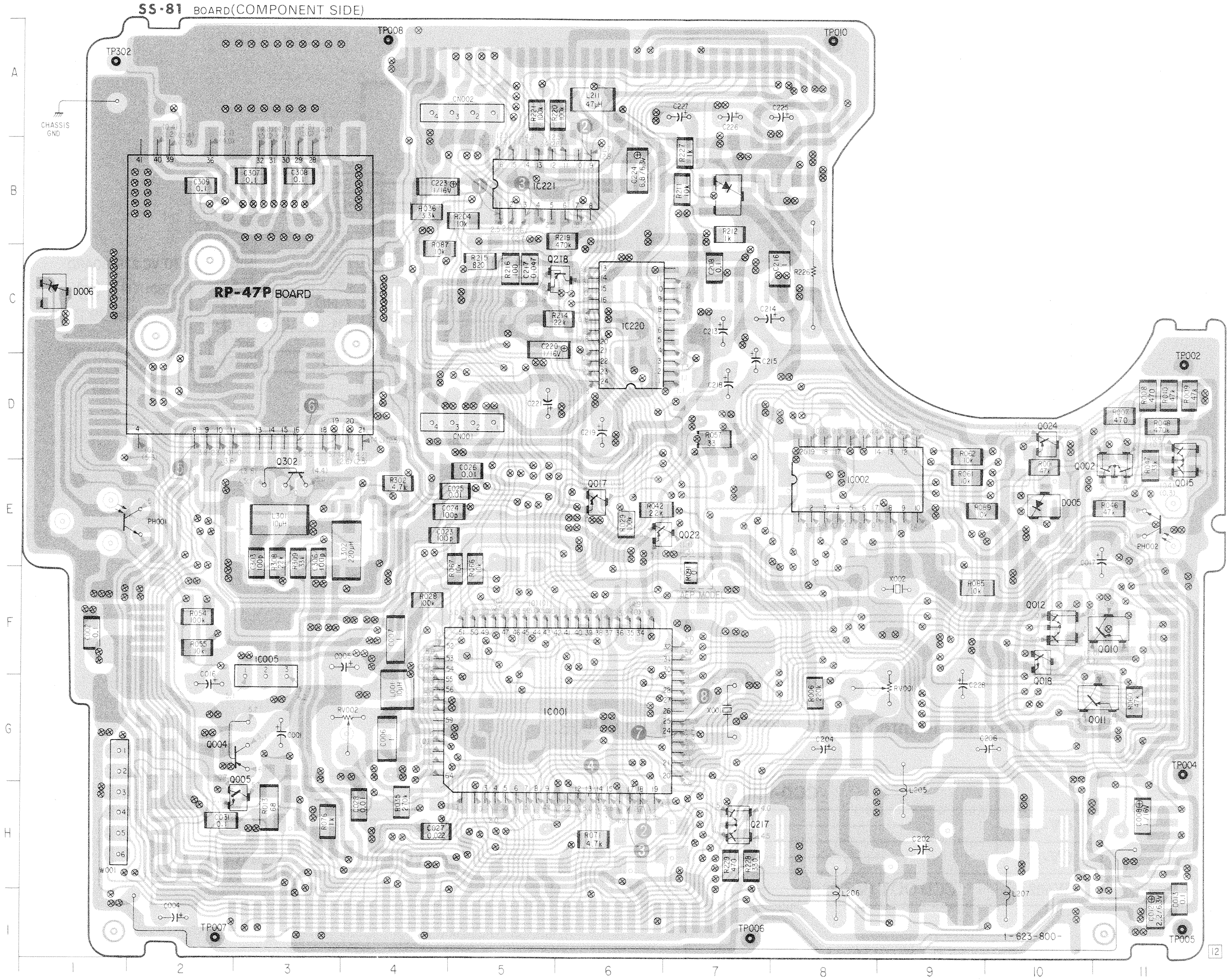

TO FP-57 BOARD
FP-57
TO AF-32 BOARD CN002
TO FD-4P BOARD CN151
TO VC-24P BOARD CN702
FP-60
TO VA-36 BOARD
IC004
1-628-800-
12
12
13
14
15
16
17
18
19
20
21
DC-DC CONVERTER
CN002
VTR 5V 1
VTR PWR 2
CAM PWR 3
VA GND 4
SS GND 5
CN003(BLK)
1 15V
2 28.5V
3 GND
4 7V
5 5V
TO VC-23P BOARD CN601
CN001(WHT)
1 DD UNREG WHT
2 DD UNREG GND BLK
(WHT)
TO SW-40P BOARD W952
GND
FE (X)
FE (Y)
FE GND
CH 1 (X)
CH 1 (Y)
CH 1 GND
CH 2 (X)
CH 2 (Y)
CH 2 GND
CH 1' (X)
CH 1' (Y)
CH 1' GND
FLYING ERASE HEAD
VIDEO HEAD CH 1
VIDEO HEAD CH 2
VIDEO HEAD CH 1'

Marked ★ is not able to measure the voltage of this position.

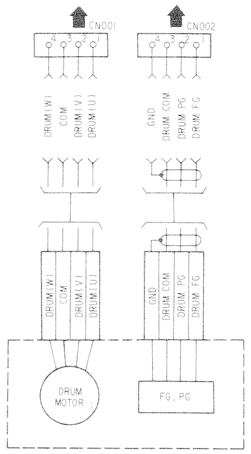
SS-81 (SERVO, SYSTEM CONTROL, REC/PB AMP) PRINTED WIRING BOARD

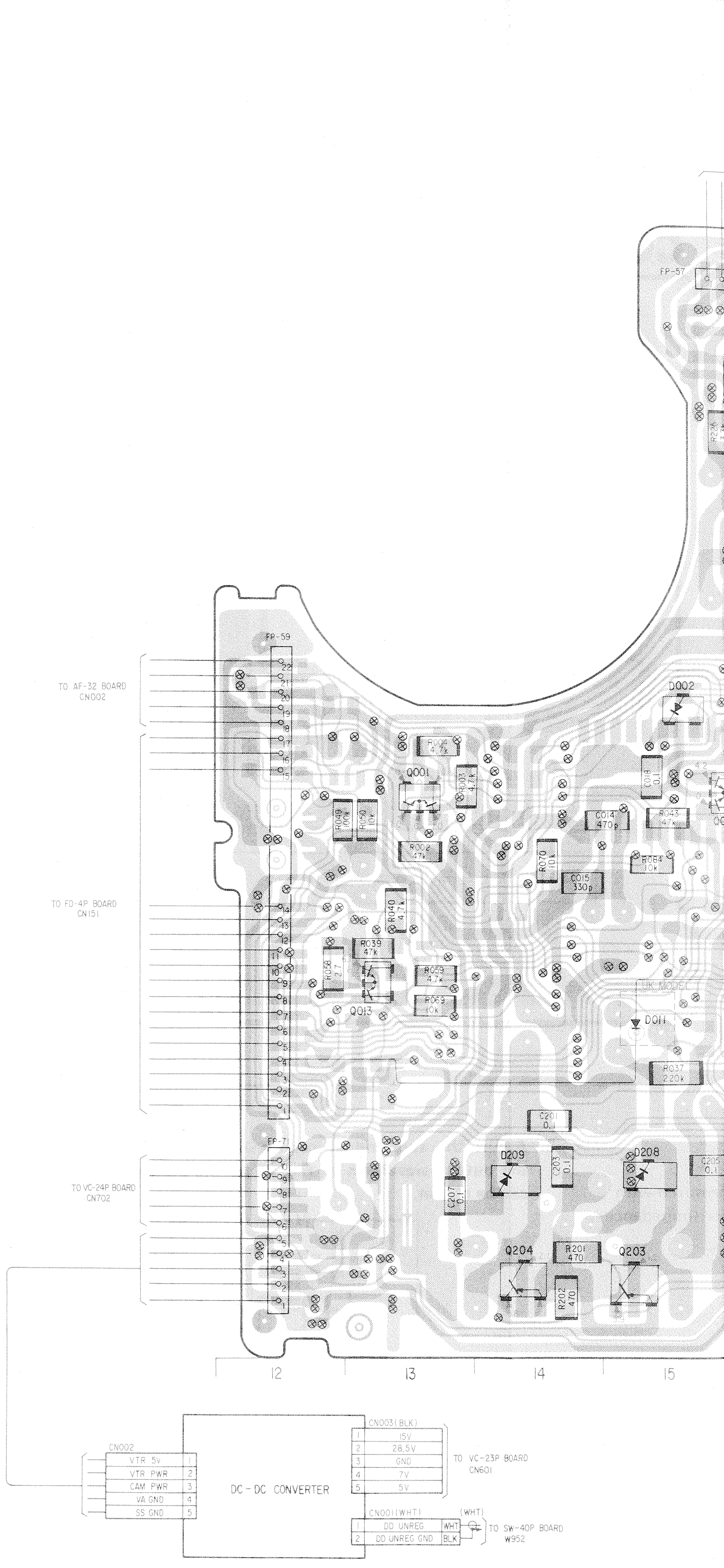
— Ref. No. SS-81 BOARD : 1,000 series —

CN001	D-5
CN002	A-5
CN003	F-22
CN301	B-21
CN302	D-22
D001	B-20
D002	D-16
D003	H-18
D004	H-18
D005	E-10
D006	C-1
D007	C-19
D008	E-17
D009	D-17
D208	H-16
D209	H-15
D223	B-7
FP-57	A-16
FP-59	D-12
FP-60	I-19
FP-71	G-12
IC001	G-5
IC002	E-8
IC003	D-21
IC004	H-22
IC005	F-3
IC220	C-6
IC221	B-5
IC222	B-17
Q001	E-14
Q002	D-11
Q004	G-3
Q005	H-3
Q006	C-22
Q007	C-21
Q009	G-20
Q010	F-11
Q011	G-11
Q012	F-10
Q013	F-13
Q014	C-19
Q015	D-11
Q016	F-22
Q017	E-6
Q018	F-10
Q019	F-17
Q020	H-21
Q021	H-21
Q022	E-6
Q023	F-17
Q024	D-10
Q025	E-16
Q203	I-16
Q204	I-15
Q216	F-18
Q217	H-7
Q218	C-6
Q219	C-18
Q302	E-3
Q303	E-21
PH001	E-2
PH002	E-11
RV001	G-9
RV002	G-4
TP002	D-11
TP004	G-11
TP007	I-2
TP008	A-4
TP010	A-8
TP302	A-1
W001	H-1

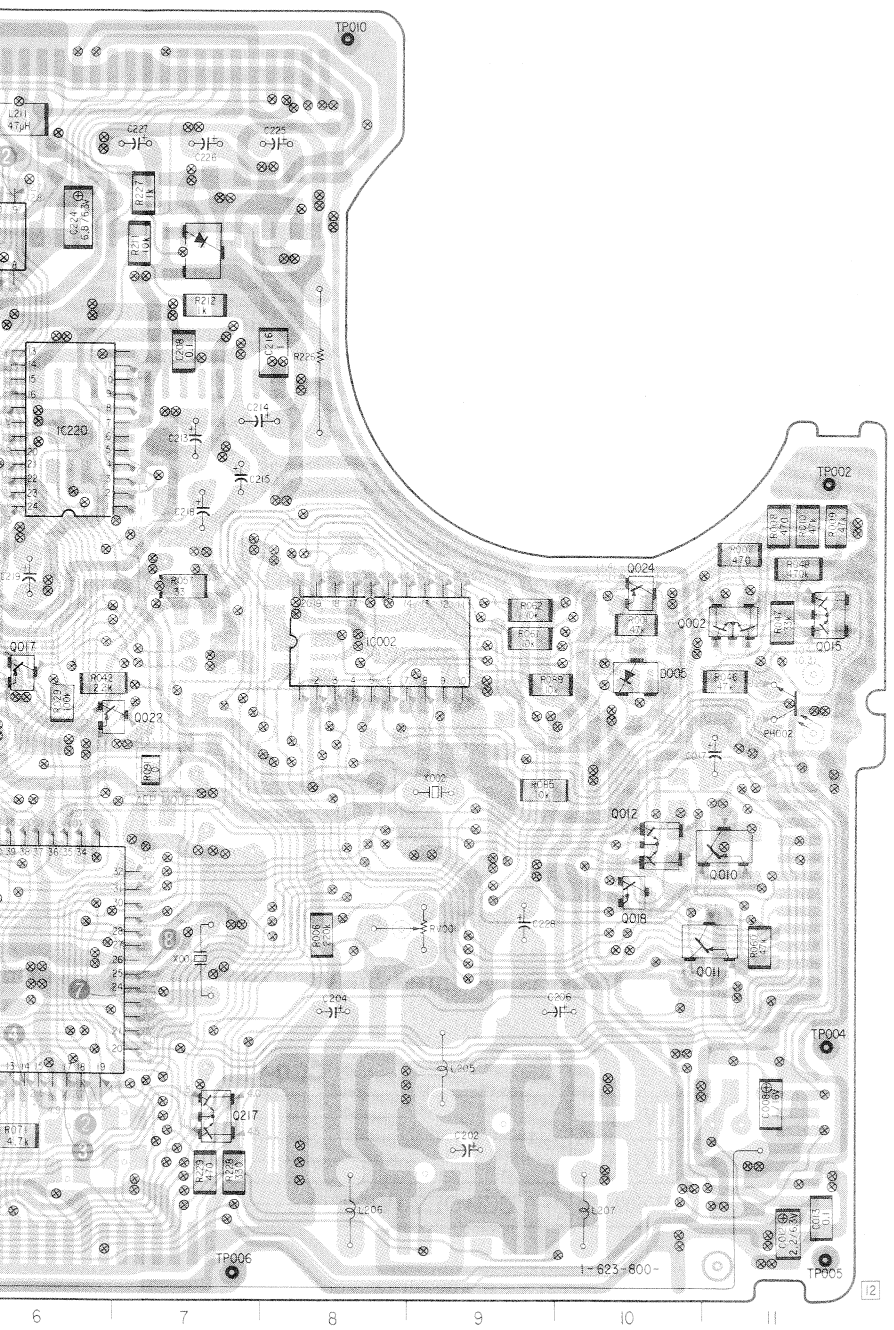

SS-81 BOARD (COMPONENT SIDE)
RP-47P BOARD
CHASSIS GND
IC001
IC002
IC005
IC220
IC221
TP002
TP004
TP005
TP006
TP007
TP008
TP010
TP302
1-623-800-
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8
9
10
11
12

no mark : REC/PB mode
( ) : REC mode
( ) : PB mode
Marked ✻ is not able to measure the voltage of it's position.


CN001
CN002
DRUM(W)
COM
DRUM(V)
DRUM(U)
GND
DRUM COM
DRUM PG
DRUM FG
DRUM MOTOR
FG, PG


FP-57
FP-59
FP-71
TO AF-32 BOARD CN002
TO FD-4P BOARD CN151
TO VC-24P BOARD CN702
Q001
Q013
Q203
Q204
D002
D011
D208
D209
12
13
14
15
CN002
VTR 5V
VTR PWR
CAM PWR
VA GND
SS GND
DC-DC CONVERTER
CN003(BLK)
15V
28.5V
GND
7V
5V
TO VC-23P BOARD CN601
CN001(WHT)
DD UNREG
DD UNREG GND
WHT
BLK
(WHT)
TO SW-40P BOARD W952

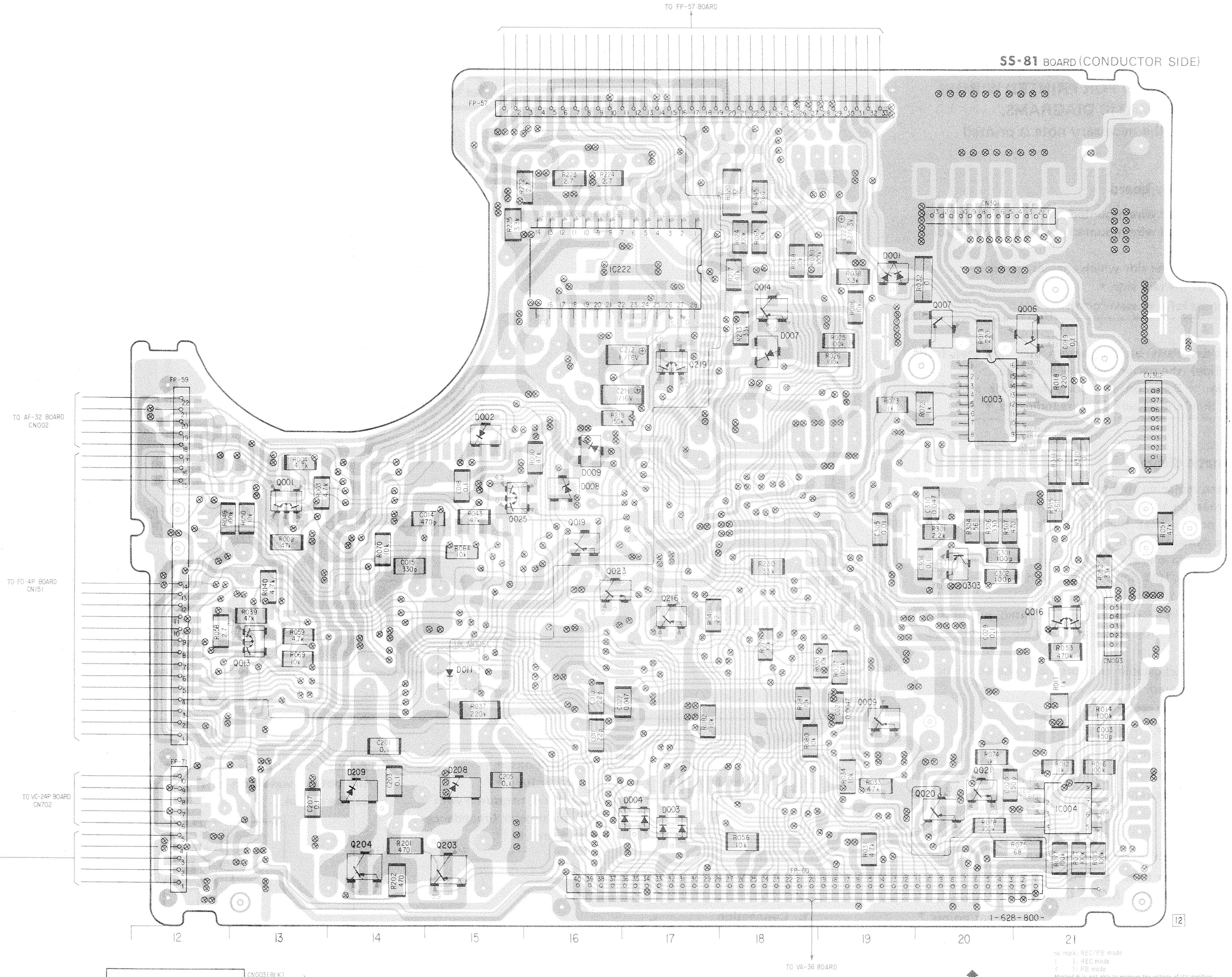
G BOARD



TP010
TP002
TP004
TP005
TP006
IC220
IC002
1-623-800-
12
6
7
8
9
10
11

no mark : REC/PB mode
( ) : REC mode
( ) : PB mode
Marked ✻ is not able to measure the voltage of it's position.

SS-81 BOARD (CONDUCTOR SIDE)



TO FP-57 BOARD
FP-57
FP-59
TO AF-32 BOARD CN002
TO FD-4P BOARD CN151
TO VC-24P BOARD CN4702
FP-71
FP-80
IC222
IC003
IC004
CN301
CN302
CN303
TO VA-36 BOARD
1-628-800-
12
12
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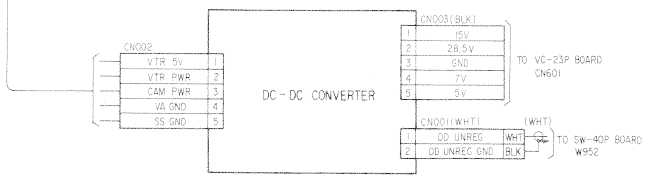
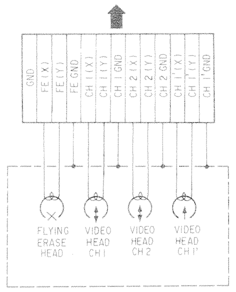
21

no mark : REC/PB mode
( ) : REC mode
( ) : PB mode
Marked ✻ is not able to measure the voltage of it's position



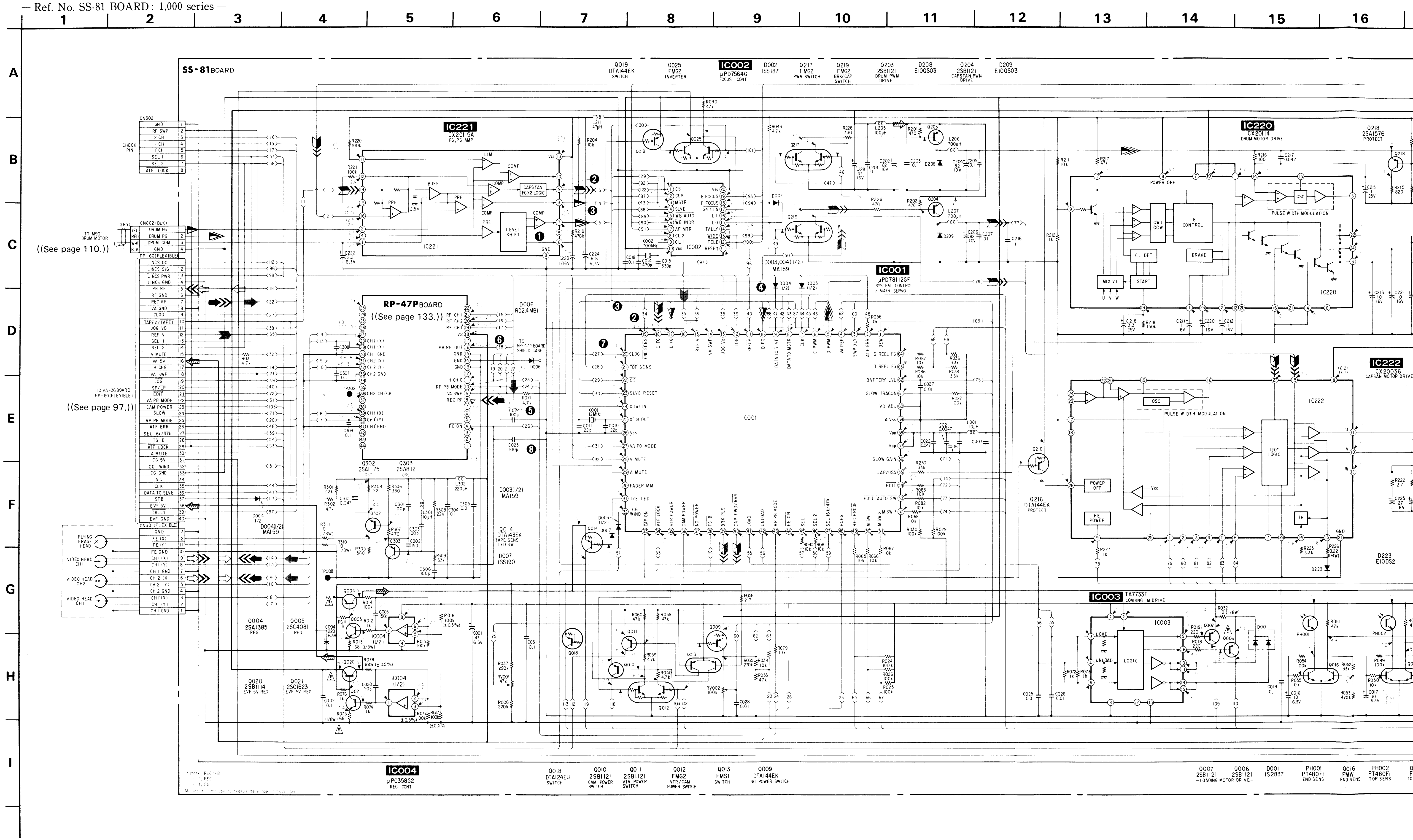
CN002
VTR 5V
VTR PWR
CAM PWR
VA GND
SS GND
DC - DC CONVERTER
CN003(BLK)
15V
28.5V
GND
7V
5V
TO VC-23P BOARD CN601
CN001(WHT)
DD UNREG
DD UNREG GND
WHT
BLK
(WHT)
TO SW-40P BOARD W952



GND
FE(X)
FE(Y)
FE GND
CH 1(X)
CH 1(Y)
CH 1 GND
CH 2(X)
CH 2(Y)
CH 2 GND
CH 1'(X)
CH 1'(Y)
CH 1' GND
FLYING ERASE HEAD
VIDEO HEAD CH1
VIDEO HEAD CH2
VIDEO HEAD CH1'

SS-81 (SERVO, SYSTEM CONTROL, REC/PB AMP) SCHEMATIC DIAGRAM

— Ref. No. SS-81 BOARD: 1,000 series —



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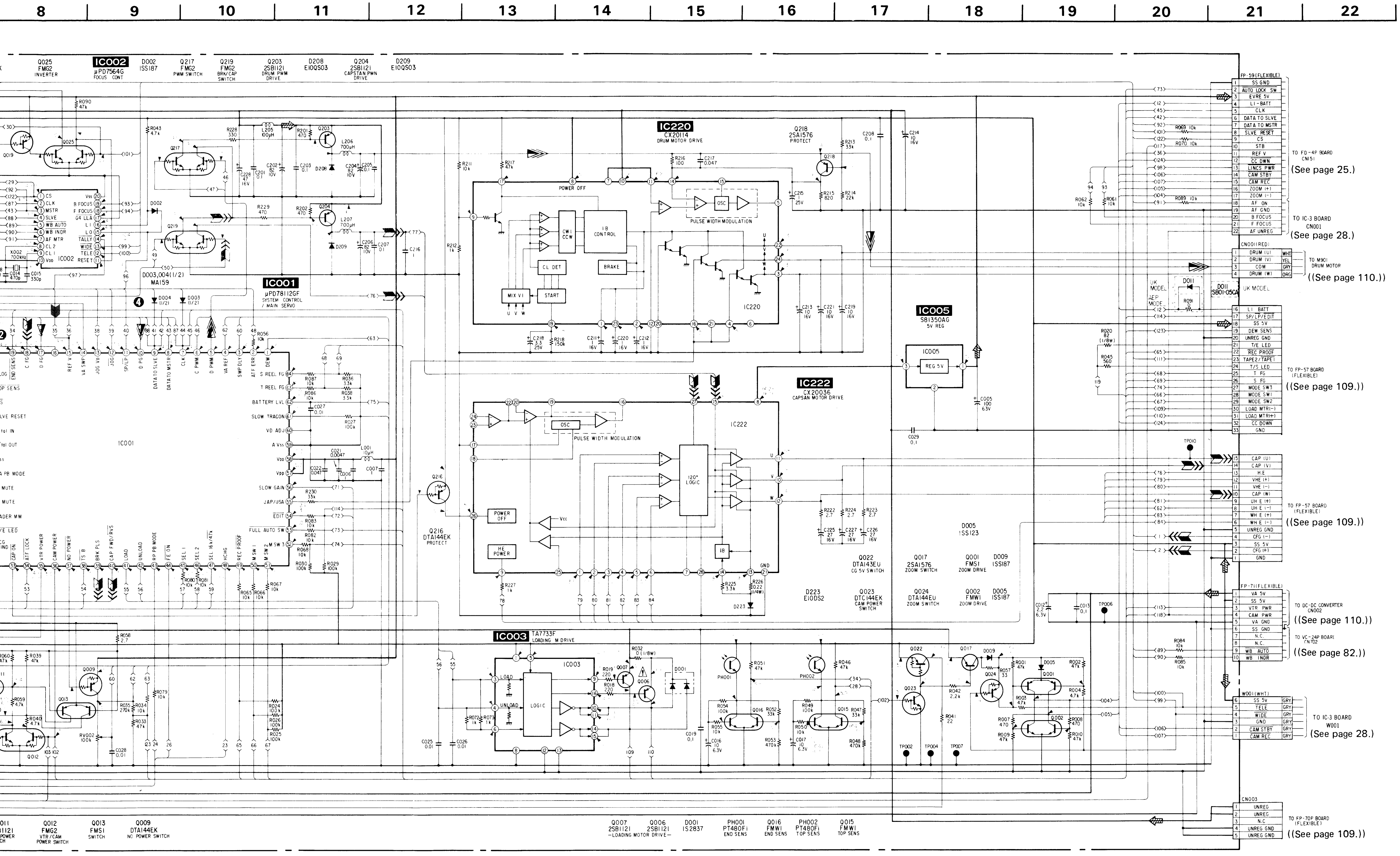
13
14
15
16
A
B
C
D
E
F
G
H
I
SS-81BOARD
Q019 DTA144EK SWITCH
Q025 FMG2 INVERTER
IC002 μPD7564G FOCUS CONT
D002 1SS187
Q217 FMG2 PWM SWITCH
Q219 FMG2 BRK/CAP SWITCH
Q203 2SB1121 DRUM PWM DRIVE
D208 E10QS03
Q204 2SB1121 CAPSTAN PWM DRIVE
D209 E10QS03
IC221 CX20115A FG,PG AMP
IC220 CX20114 DRUM MOTOR DRIVE
Q218 2SA1576 PROTECT
IC001 μPD78112GF SYSTEM CONTROL / MAIN SERVO
IC222 CX20036 CAPSAN MOTOR DRIVE
IC003 TA7733F LOADING M DRIVE
IC004 μPC358G2 REG CONT
RP-47PBOARD
((See page 133.))
CN302
CHECK PIN
TO M901 DRUM MOTOR
((See page 110.))
TO VA-36BOARD FP-60(FLEXIBLE)
((See page 97.))
FLYING ERASE HEAD
VIDEO HEAD CH1
VIDEO HEAD CH2
VIDEO HEAD CH1'
D006 RD24MB1
D003(1/2) MA159
Q014 DTA143EK TAPE SENS LED SW
D007 1SS190
Q302 2SA1175
Q303 2SA812
Q004 2SA1385 REG
Q005 2SC4081 REG
Q020 2SB1114 EVF 5V REG
Q021 2SC1623 EVF 5V REG
Q216 DTA144EK PROTECT
D223 E10DS2
Q018 DTA124EU SWITCH
Q010 2SB1121 CAM POWER SWITCH
Q011 2SB1121 VTR POWER SWITCH
Q012 FMG2 VTR/CAM POWER SWITCH
Q013 FMS1 SWITCH
Q009 DTA144EK NC POWER SWITCH
Q007 2SB1121
Q006 2SB1121
—LOADING MOTOR DRIVE—
D001 1S2837
PH001 PT480F1 END SENS
Q016 FMW1 END SENS
PH002 PT480F1 TOP SENS
PULSE WIDTH MODULATION
POWER OFF
CW/CCW
18 CONTROL
CL DET
BRAKE
MIX V1
START
120° LOGIC
HE POWER
LOGIC
LEVEL SHIFT
CAPSTAN FGX2 LOGIC
OSC


8
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12
13
14
15
16
17
18
19
20
21
22
Q025 FMG2 INVERTER
IC002 μPD7564G FOCUS CONT
D002 1SS187
Q217 FMG2 PWM SWITCH
Q219 FMG2 BRK/CAP SWITCH
Q203 2SB1121 DRUM PWM DRIVE
D208 E10QS03
Q204 2SB1121 CAPSTAN PWM DRIVE
D209 E10QS03
IC220 CX20114 DRUM MOTOR DRIVE
Q218 2SA1576 PROTECT
POWER OFF
PULSE WIDTH MODULATION
OSC
CW1 CCW
18 CONTROL
CL DET
BRAKE
MIX V1
START
U V W
IC001 μPD78112GF SYSTEM CONTROL / MAIN SERVO
D003,004(1/2) MA159
IC005 SB1350AG 5V REG
REG 5V
IC222 CX20036 CAPSAN MOTOR DRIVE
120° LOGIC
POWER OFF
HE POWER
Q216 DTA144EK PROTECT
D005 1SS123
Q022 DTA143EU CG 5V SWITCH
Q017 2SA1576 ZOOM SWITCH
Q001 FMS1 ZOOM DRIVE
D009 1SS187
D223 E10DS2
Q023 DTC144EK CAM POWER SWITCH
Q024 DTA144EU ZOOM SWITCH
Q002 FMW1 ZOOM DRIVE
D005 1SS187
IC003 TA7733F LOADING M DRIVE
LOAD
UNLOAD
LOGIC
PH001
PH002
Q011 2SB1121 POWER SWITCH
Q012 FMG2 VTR/CAM POWER SWITCH
Q013 FMS1 SWITCH
Q009 DTA144EK NC POWER SWITCH
Q007 2SB1121 Q006 2SB1121 –LOADING MOTOR DRIVE–
D001 1S2837
PH001 PT480F1 END SENS
Q016 FMW1 END SENS
PH002 PT480F1 TOP SENS
Q015 FMW1 TOP SENS
FP-59 (FLEXIBLE)
SS GND
AUTO LOCK SW
EVRE 5V
LI-BATT
CLK
DATA TO SLVE
DATA TO MSTR
SLVE RESET
CS
STB
REF V
CC DWN
LINCS PWR
CAM STBY
CAM REC
ZOOM (+)
ZOOM (-)
AF ON
AF GND
B FOCUS
F FOCUS
AF UNREG
TO FD-4P BOARD CN151
(See page 25.)
TO IC-3 BOARD CN001
(See page 28.)
CN001 (RED)
DRUM (U)
DRUM (V)
COM
DRUM (W)
TO M901 DRUM MOTOR
((See page 110.))
UK MODEL
AEP MODE
D011 SB01-05CA
LI BATT
SP/LP/EDIT
SS 5V
DEW SENS
UNREG GND
T/E LED
REC PROOF
TAPE2/TAPE1
T/S LED
T FG
S FG
MODE SW3
MODE SW1
MODE SW2
LOAD MTR(-)
LOAD MTR(+)
CC DOWN
GND
TO FP-57 BOARD (FLEXIBLE)
((See page 109.))
CAP (U)
CAP (V)
HE
VHE (+)
VHE (-)
CAP (W)
UH E (+)
UH E (-)
WH E (+)
WH E (-)
UNREG GND
CFG (-)
SS 5V
CFG (+)
GND
TO FP-57 BOARD (FLEXIBLE)
((See page 109.))
FP-71 (FLEXIBLE)
VA 5V
SS 5V
VTR PWR
CAM PWR
VA GND
SS GND
N.C.
N.C.
WB AUTO
WB INDR
TO DC-DC CONVERTER CN002
((See page 110.))
TO VC-24P BOARD CN702
((See page 82.))
W001 (WHT)
SS 5V
TELE
WIDE
GND
CAM STBY
CAM REC
TO IC-3 BOARD W001
(See page 28.)
CN003
UNREG
UNREG
N.C
UNREG GND
UNREG GND
TO FP-70P BOARD (FLEXIBLE)
((See page 109.))
TP001
TP002
TP004
TP006
TP007
TP010

- **Signal path**

➡》》: REC Y/CHROMA
⇨》》: PB Y/CHROMA S
➡ : REC AUDIO Sign
⇨ : PB AUDIO Signal

Signal path

Drum speed servo
Drum phase servo
Drum servo (speed and
Capstan speed servo
Capstan phase servo
Capstan servo (speed an
Ref. signal

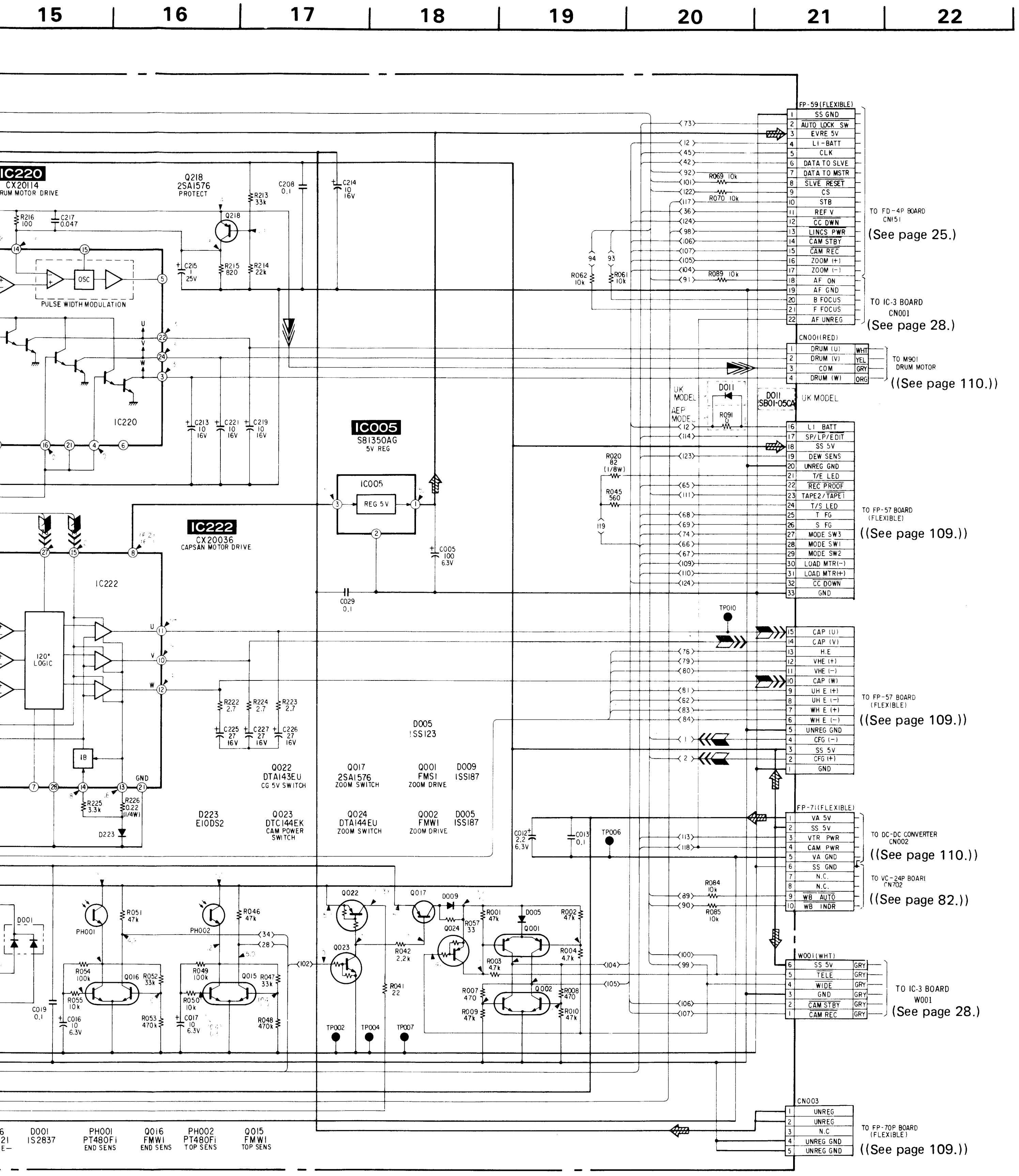
- Number of page on th
( )mark: refer to
(( ))mark: refer to

There are a few

follows.

● SS-81 BOARD Dif

Ref. No.	
COMPL	⋆A-7
C004	1-124-
D011	
R091	1-216-


15
16
17
18
19
20
21
22
IC220
CX20114
DRUM MOTOR DRIVE
PULSE WIDTH MODULATION
Q218
2SA1576
PROTECT
IC222
CX20036
CAPSAN MOTOR DRIVE
120° LOGIC
IC005
S81350AG
5V REG
REG 5V
FP-59 (FLEXIBLE)
SS GND
AUTO LOCK SW
EVRE 5V
LI-BATT
CLK
DATA TO SLVE
DATA TO MSTR
SLVE RESET
CS
STB
REF V
CC DWN
LINCS PWR
CAM STBY
CAM REC
ZOOM (+)
ZOOM (-)
AF ON
AF GND
B FOCUS
F FOCUS
AF UNREG
TO FD-4P BOARD CN151
(See page 25.)
TO IC-3 BOARD CN001
(See page 28.)
CN001 (RED)
DRUM (U)
DRUM (V)
COM
DRUM (W)
TO M901 DRUM MOTOR
((See page 110.))
UK MODEL
AEP MODEL
D011
SB01-05CA
LI BATT
SP/LP/EDIT
SS 5V
DEW SENS
UNREG GND
T/E LED
REC PROOF
TAPE2/TAPE1
T/S LED
T FG
S FG
MODE SW3
MODE SW1
MODE SW2
LOAD MTR(-)
LOAD MTR(+)
CC DOWN
GND
TO FP-57 BOARD (FLEXIBLE)
((See page 109.))
CAP (U)
CAP (V)
H.E
VHE (+)
VHE (-)
CAP (W)
UH E (+)
UH E (-)
WH E (+)
WH E (-)
UNREG GND
CFG (-)
SS 5V
CFG (+)
GND
TO FP-57 BOARD (FLEXIBLE)
((See page 109.))
FP-71 (FLEXIBLE)
VA 5V
SS 5V
VTR PWR
CAM PWR
VA GND
SS GND
N.C.
N.C.
WB AUTO
WB INDR
TO DC-DC CONVERTER CN002
((See page 110.))
TO VC-24P BOARD CN702
((See page 82.))
W001 (WHT)
SS 5V
TELE
WIDE
GND
CAM STBY
CAM REC
TO IC-3 BOARD W001
(See page 28.)
CN003
UNREG
UNREG
N.C
UNREG GND
UNREG GND
TO FP-70P BOARD (FLEXIBLE)
((See page 109.))
Q022 DTA143EU CG 5V SWITCH
Q017 2SA1576 ZOOM SWITCH
Q001 FMS1 ZOOM DRIVE
D009 1SS187
D005 1SS123
D223 EI0DS2
Q023 DTC144EK CAM POWER SWITCH
Q024 DTA144EU ZOOM SWITCH
Q002 FMW1 ZOOM DRIVE
D005 1SS187
D001 1S2837
PH001 PT480Fi END SENS
Q016 FMW1 END SENS
PH002 PT480Fi TOP SENS
Q015 FMW1 TOP SENS
TP010
TP006
TP002
TP004
TP007

- **Signal path**

➡» : REC Y/CHROMA Signal
⇨» : PB Y/CHROMA Signal
➡ : REC AUDIO Signal
⇨ : PB AUDIO Signal

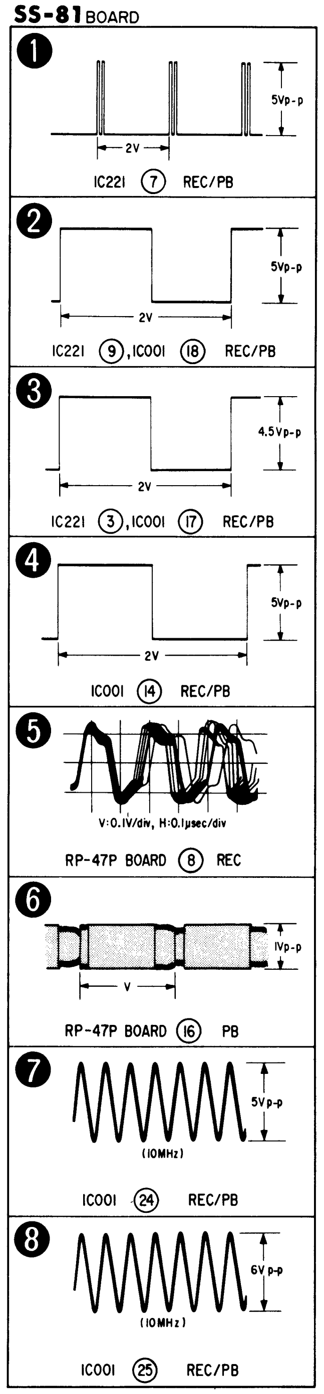
Signal path

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷	
Drum servo (speed and phase)		▷»	
Capstan speed servo		⇨	
Capstan phase servo	➡»		⇨»
Capstan servo (speed and phase)		⇨»	
Ref. signal	➡	⇨	⇨

- Number of page on the board shows circuit diagram.

( )mark: refer to this service manual.
(( ))mark: refer to CCD-V90E service manual.

SS-81 BOARD



There are a few differences in SS-81 boards between EVC-X10 and CCD-V90E as follows.

- **SS-81 BOARD Difference list**

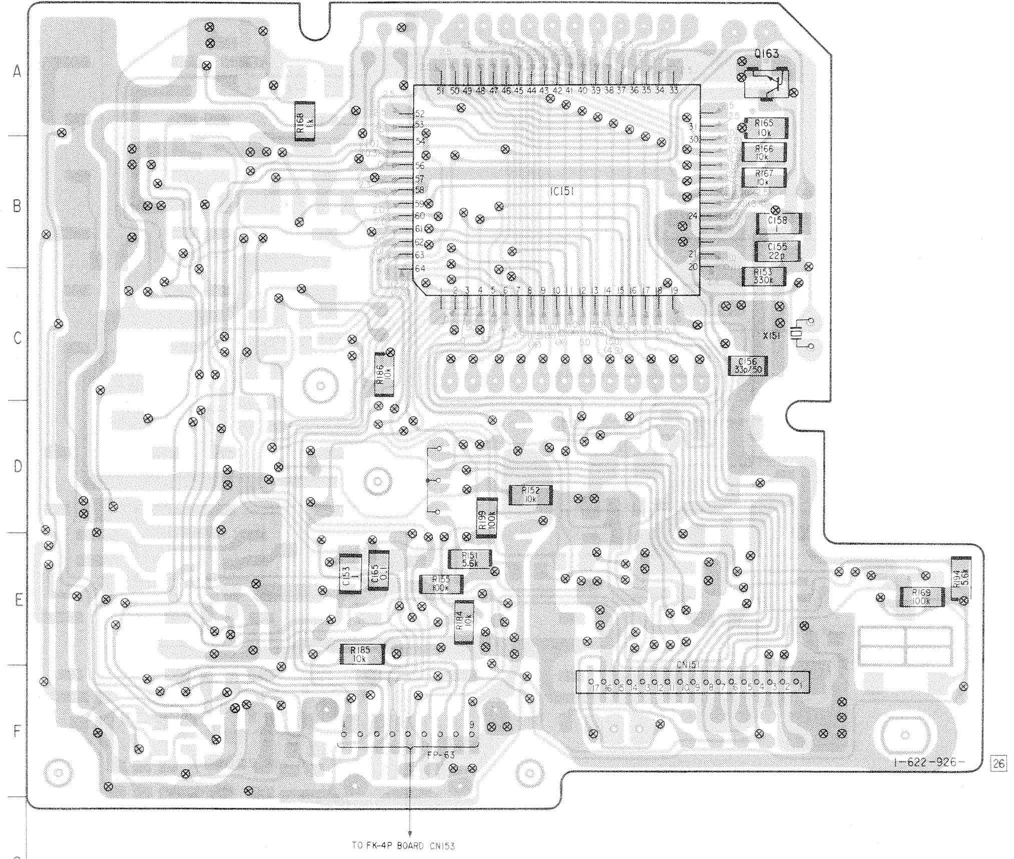
Ref. No.	CCD-V90E	EVC-X10
COMPL	⋆A-7060-920-A	⋆A-7061-510-A (AEP) ⋆A-7061-511-A (UK)
C004	1-124-245-00 ELECT 4.7MF 20% 16V	1-126-176-11 ELECT 220MF 20% 6.3V
D011	————————	8-719-938-74 DIODE SB01-05CP-TB (UK ONLY)
R091	1-216-296-00 METAL GLAZE 0 5% 1/10W	(AEP ONLY)

FD-4P (MODE CONTROL, CONTROL SWITCH) PRINTED WIRING BOARD

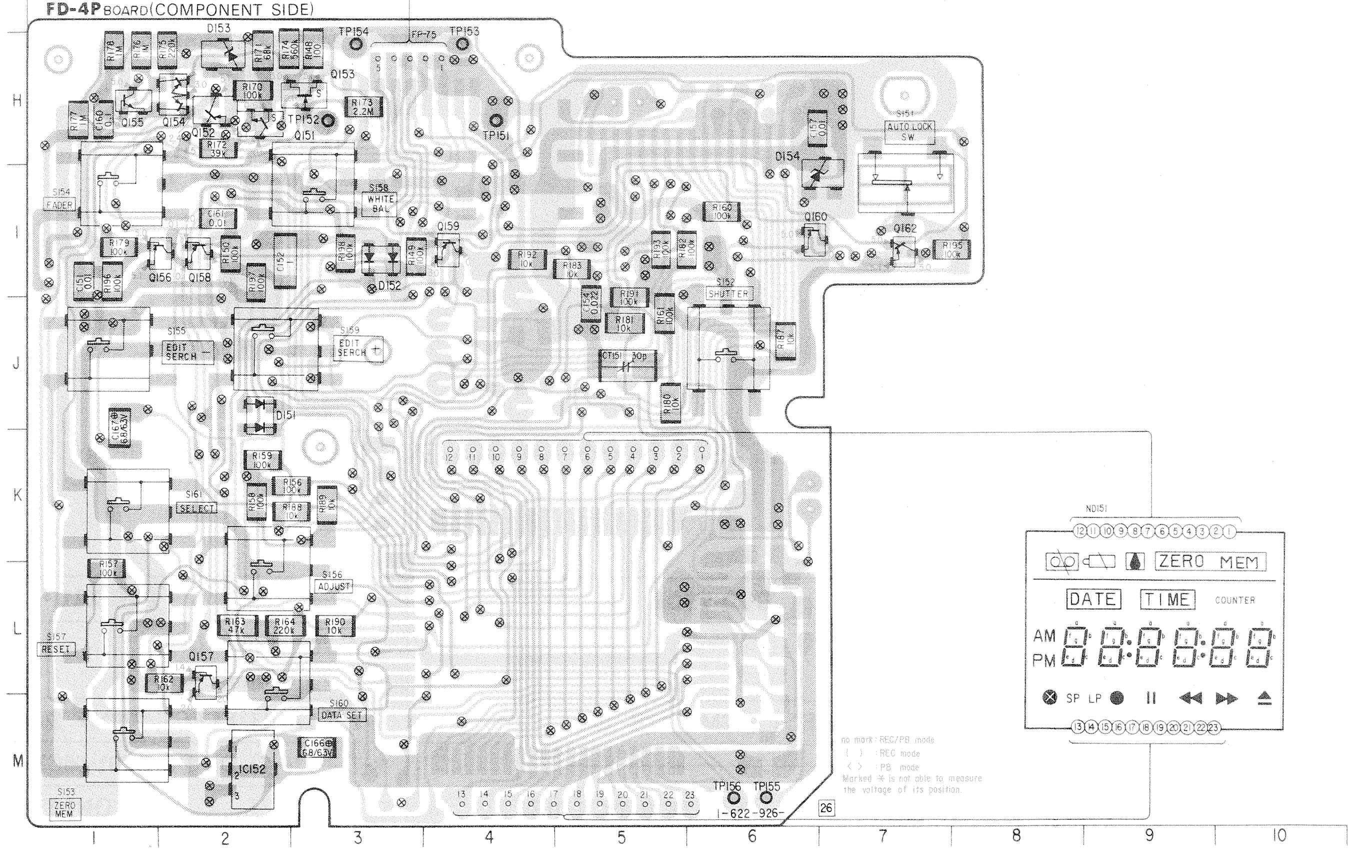
— Ref. No. FD-4 BOARD : 1,000 series —

CN151	F-5
D151	J-2
D152	I-3
D153	H-2
D154	I-6
FP-63	F-3
FP-75	H-3
IC151	B-4
IC152	M-2
Q151	H-2
Q152	H-2
Q153	H-3
Q154	H-2
Q155	H-1
Q156	I-2
Q157	L-2
Q158	I-2
Q159	I-4
Q160	I-6
Q162	I-7
Q163	A-6

FD-4P BOARD(CONDUCTOR SIDE)


A
B
C
D
E
F
G
IC151
Q163
X151
CN151
FP-63
1-622-926-
26
TO FK-4P BOARD CN153
TO VC-24P BOARD

FD-4P BOARD(COMPONENT SIDE)


H
I
J
K
L
M
1
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3
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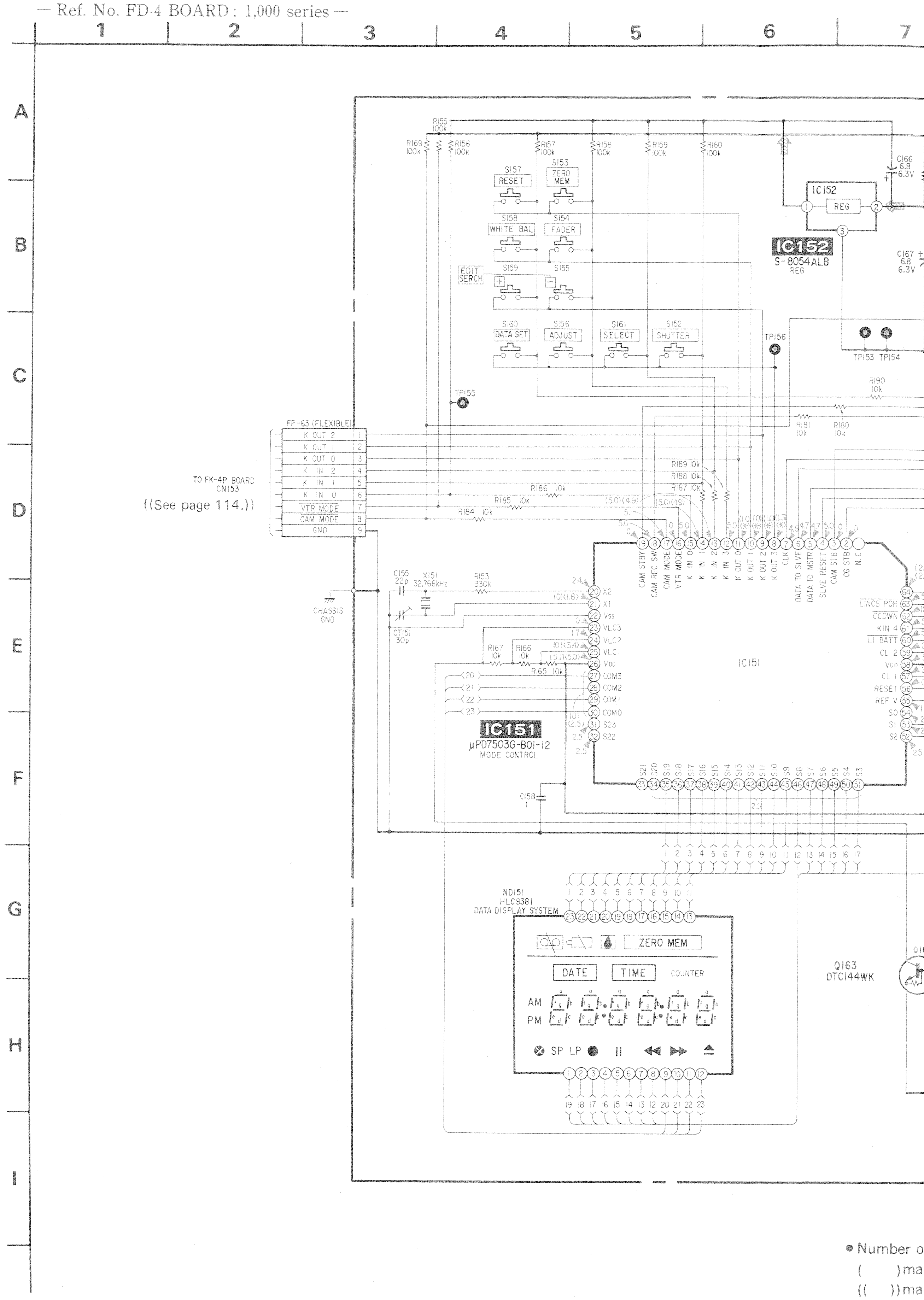
5
6
7
8
9
10
D153
TP154
FP-75
TP153
Q153
Q155
Q154
Q152
Q151
TP152
TP151
S151 AUTO LOCK SW
D154
S154 FADER
S158 WHITE BAL
Q156
Q158
Q159
D152
Q160
Q162
S155 EDIT SERCH
S159 EDIT SERCH
S152 SHUTTER
D151
S161 SELECT
S156 ADJUST
S157 RESET
Q157
S160 DATA SET
S153 ZERO MEM
IC152
TP156
TP155
1-622-926-
26
ND151
ZERO MEM
DATE
TIME
COUNTER
AM
PM
SP LP
II

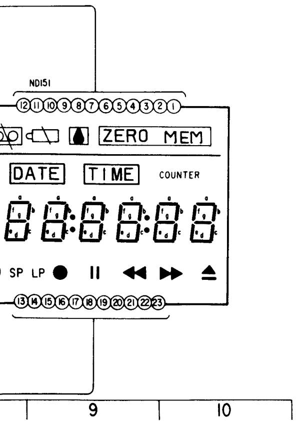
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
Marked ※ is not able to measure the voltage of its position.

FD-4P (MODE CONTROL, CONTROL SWITCH) SCHEMATIC DIAGRAM

— Ref. No. FD-4 BOARD : 1,000 series —

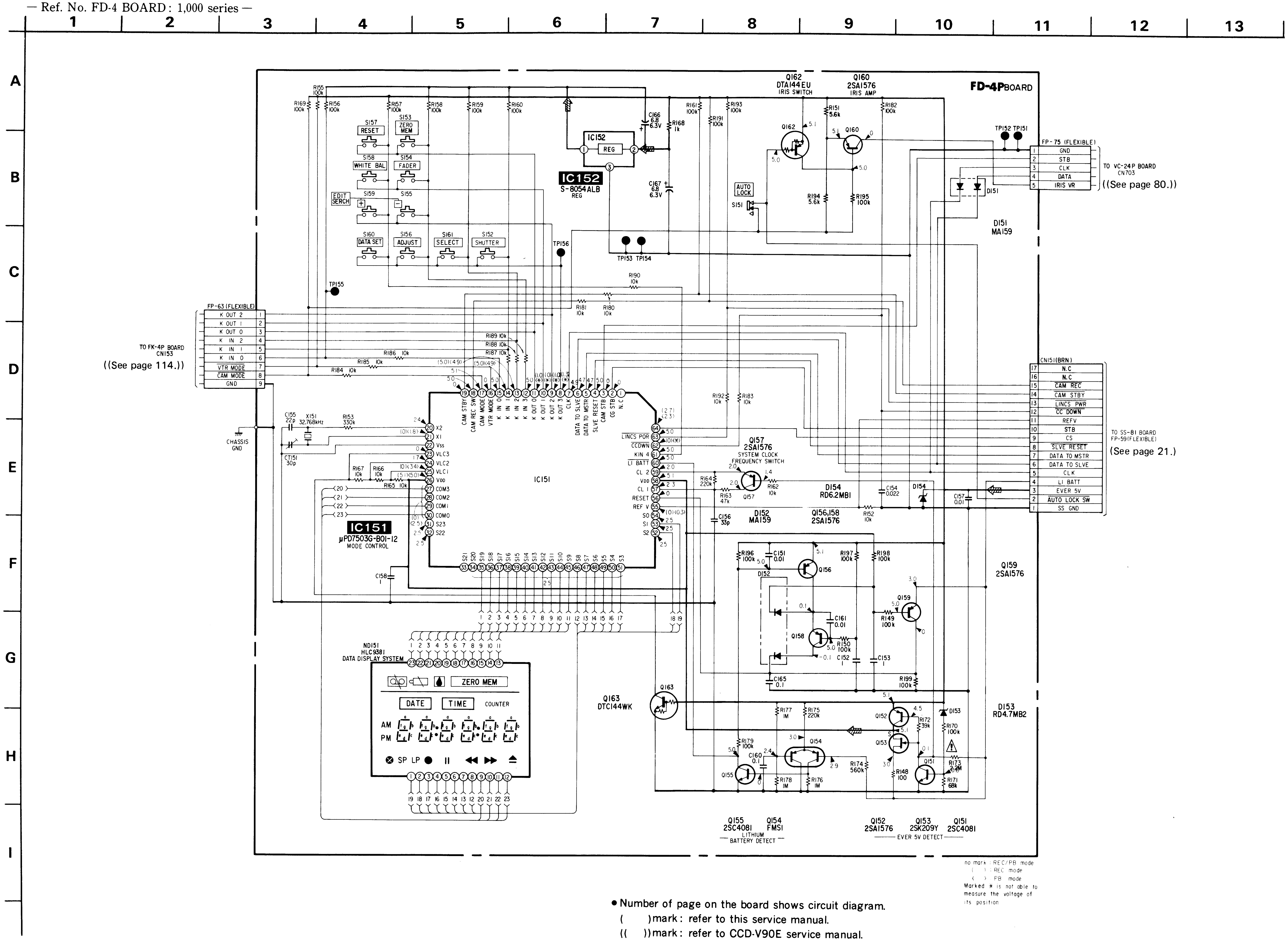

1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
S157 RESET
S153 ZERO MEM
S158 WHITE BAL
S154 FADER
EDIT SERCH
S159
S155
S160 DATA SET
S156 ADJUST
S161 SELECT
S152 SHUTTER
IC152 REG
IC152 S-8054ALB REG
TP156
TP153 TP154
TP155
FP-63 (FLEXIBLE)
K OUT 2
K OUT 1
K OUT 0
K IN 2
K IN 1
K IN 0
VTR MODE
CAM MODE
GND
TO FK-4P BOARD CN153
((See page 114.))
CHASSIS GND
X151 32.768kHz
IC151
IC151 μPD7503G-B01-12 MODE CONTROL
ND151 HLC9381 DATA DISPLAY SYSTEM
ZERO MEM
DATE
TIME
COUNTER
AM
PM
SP LP
Q163 DTC144WK

• Number o
( )ma
(( ))ma


ND151
ZERO MEM
DATE
TIME
COUNTER
SP LP ● II ◀◀ ▶▶ ⏏
9
10

FD-4P (MODE CONTROL, CONTROL SWITCH) SCHEMATIC DIAGRAM

— Ref. No. FD-4 BOARD : 1,000 series —


1
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9
10
11
12
13
A
B
C
D
E
F
G
H
I
FD-4P BOARD
IC151
μPD7503G-B01-12
MODE CONTROL
IC152
S-8054ALB
REG
Q162
DTA144EU
IRIS SWITCH
Q160
2SA1576
IRIS AMP
S157 RESET
S153 ZERO MEM
S158 WHITE BAL
S154 FADER
S159 EDIT SERCH
S155
S160 DATA SET
S156 ADJUST
S161 SELECT
S152 SHUTTER
S151 AUTO LOCK
TP151
TP152
TP153
TP154
TP155
TP156
FP-63 (FLEXIBLE)
K OUT 2
K OUT 1
K OUT 0
K IN 2
K IN 1
K IN 0
VTR MODE
CAM MODE
GND
TO FK-4P BOARD CN153
((See page 114.))
FP-75 (FLEXIBLE)
GND
STB
CLK
DATA
IRIS VR
TO VC-24P BOARD CN703
((See page 80.))
D151
MA159
CN151 (BRN)
N.C
CAM REC
CAM STBY
LINCS PWR
CC DOWN
REFV
STB
CS
SLVE RESET
DATA TO MSTR
DATA TO SLVE
CLK
LI BATT
EVER 5V
AUTO LOCK SW
SS GND
TO SS-81 BOARD FP-59 (FLEXIBLE)
(See page 21.)
CHASSIS GND
X151 32.768kHz
CT151 30p
Q157
2SA1576
SYSTEM CLOCK FREQUENCY SWITCH
D152
MA159
D154
RD6.2MB1
Q156,158
2SA1576
Q159
2SA1576
D153
RD4.7MB2
Q163
DTC144WK
ND151
HLC9381
DATA DISPLAY SYSTEM
ZERO MEM
DATE
TIME
COUNTER
AM
PM
SP LP ● II ◀◀ ▶▶ ⏏
Q155
2SC4081
Q154
FMS1
LITHIUM BATTERY DETECT
Q152
2SA1576
Q153
2SK209Y
Q151
2SC4081
EVER 5V DETECT

no mark : REC/PB mode
( ) : REC mode
〈 〉 : PB mode
Marked ✱ is not able to measure the voltage of its position

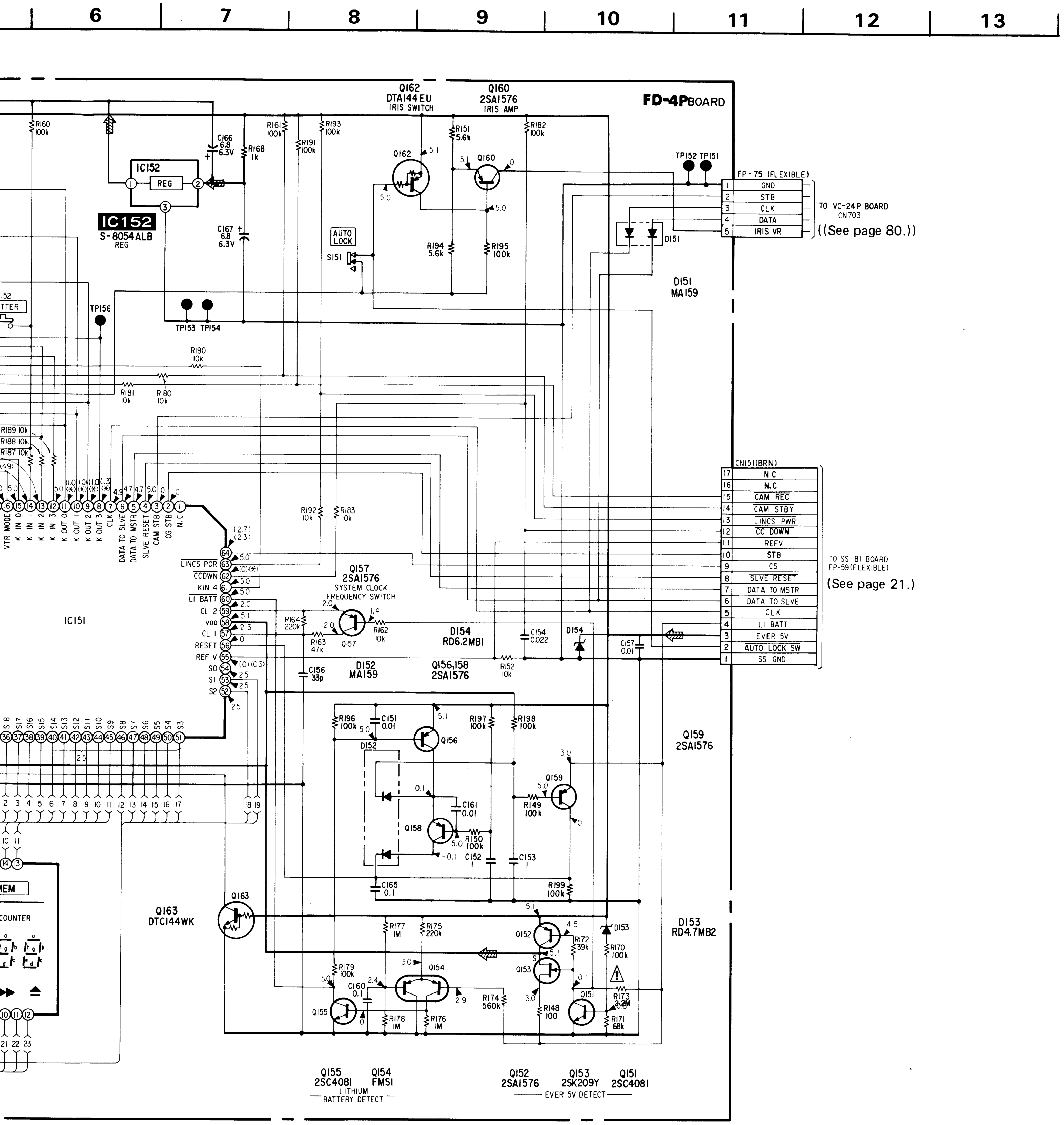
- Number of page on the board shows circuit diagram.
- ( )mark : refer to this service manual.
- (( ))mark : refer to CCD-V90E service manual.

In EVC-X

parts.

• FD-4P BO

Ref. No.
COMPL
CN152
IC151
R151
R194
RV151
SW162


6
7
8
9
10
11
12
13
FD-4P BOARD
Q162
DTA144EU
IRIS SWITCH
Q160
2SA1576
IRIS AMP
IC152
REG
IC152
S-8054ALB
REG
AUTO LOCK
S151
TP152 TP151
FP-75 (FLEXIBLE)
GND
STB
CLK
DATA
IRIS VR
TO VC-24P BOARD
CN703
((See page 80.))
D151
D151
MA159
TP156
TP153 TP154
R190
10k
CN151(BRN)
N.C
N.C
CAM REC
CAM STBY
LINCS PWR
CC DOWN
REFV
STB
CS
SLVE RESET
DATA TO MSTR
DATA TO SLVE
CLK
LI BATT
EVER 5V
AUTO LOCK SW
SS GND
TO SS-81 BOARD
FP-59(FLEXIBLE)
(See page 21.)
IC151
Q157
2SA1576
SYSTEM CLOCK
FREQUENCY SWITCH
D154
RD6.2MB1
D152
MA159
Q156,158
2SA1576
Q159
2SA1576
Q163
DTC144WK
D153
RD4.7MB2
Q155
2SC4081
Q154
FMS1
LITHIUM
BATTERY DETECT
Q152
2SA1576
Q153
2SK209Y
Q151
2SC4081
EVER 5V DETECT

no mark : REC/PB mode
( ) : REC mode
< > : PB mode
Marked ★ is not able to measure the voltage of its position

- Number of page on the board shows circuit diagram.

( )mark : refer to this service manual.
(( ))mark : refer to CCD-V90E service manual.

In EVC-X10, FD-4P board has been changed as follows by deleting lens-related parts.

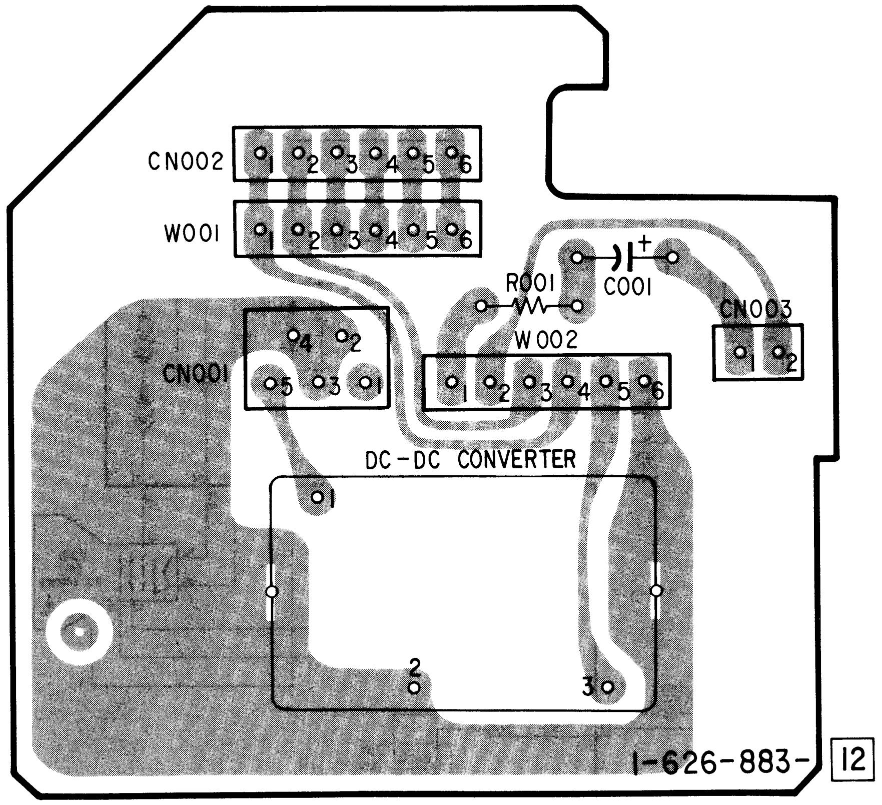
• FD-4P BOARD Difference list

Ref. No.	CCD-V90E	EVC-X10
COMPL	★A-7060-930-A	★A-7061-449-A
CN152	★1-564-001-11 PIN, CONNECTOR 2P	————————
IC151	8-759-140-70 IC UPD7503G-714-12	8-759-143-46 IC UPD7503G-B01-12
R151	1-216-045-00 METAL GLAZE 680 5% 1/10W	1-216-067-00 METAL GLAZE 5.6K 5% 1/10W
R194	1-216-045-00 METAL GLAZE 680 5% 1/10W	1-216-067-00 METAL GLAZE 5.6K 5% 1/10W
RV151	1-237-776-11 RES, VAR, CARBON 10K	————————
SW162	1-570-909-21 SWITCH, TACTIL (REFLOW TYPE) FOCUS	————————

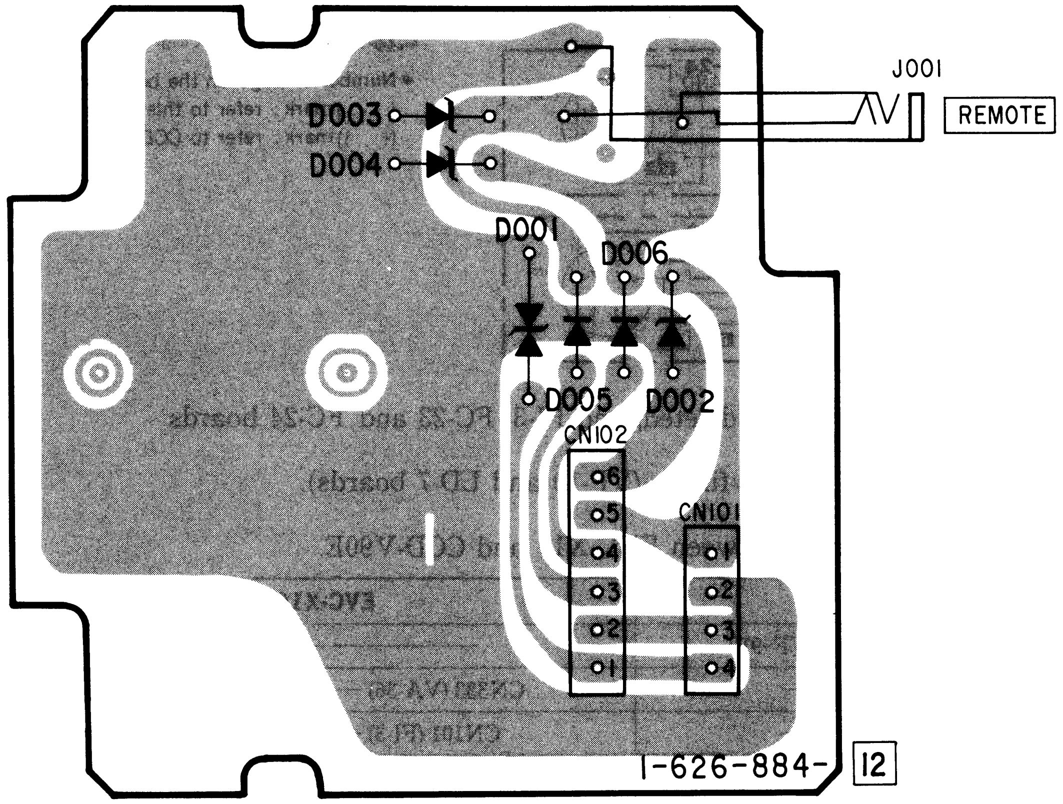
IC-3 (DC-DC CONVERTER), TF-18 (REMOTE, IRIS OUTPUT) PRINTED WIRING BOARD

— Ref. No. IC-3 BOARD : 8,000 series, TF-18 BOARD : 9,000 series —

IC-3 BOARD

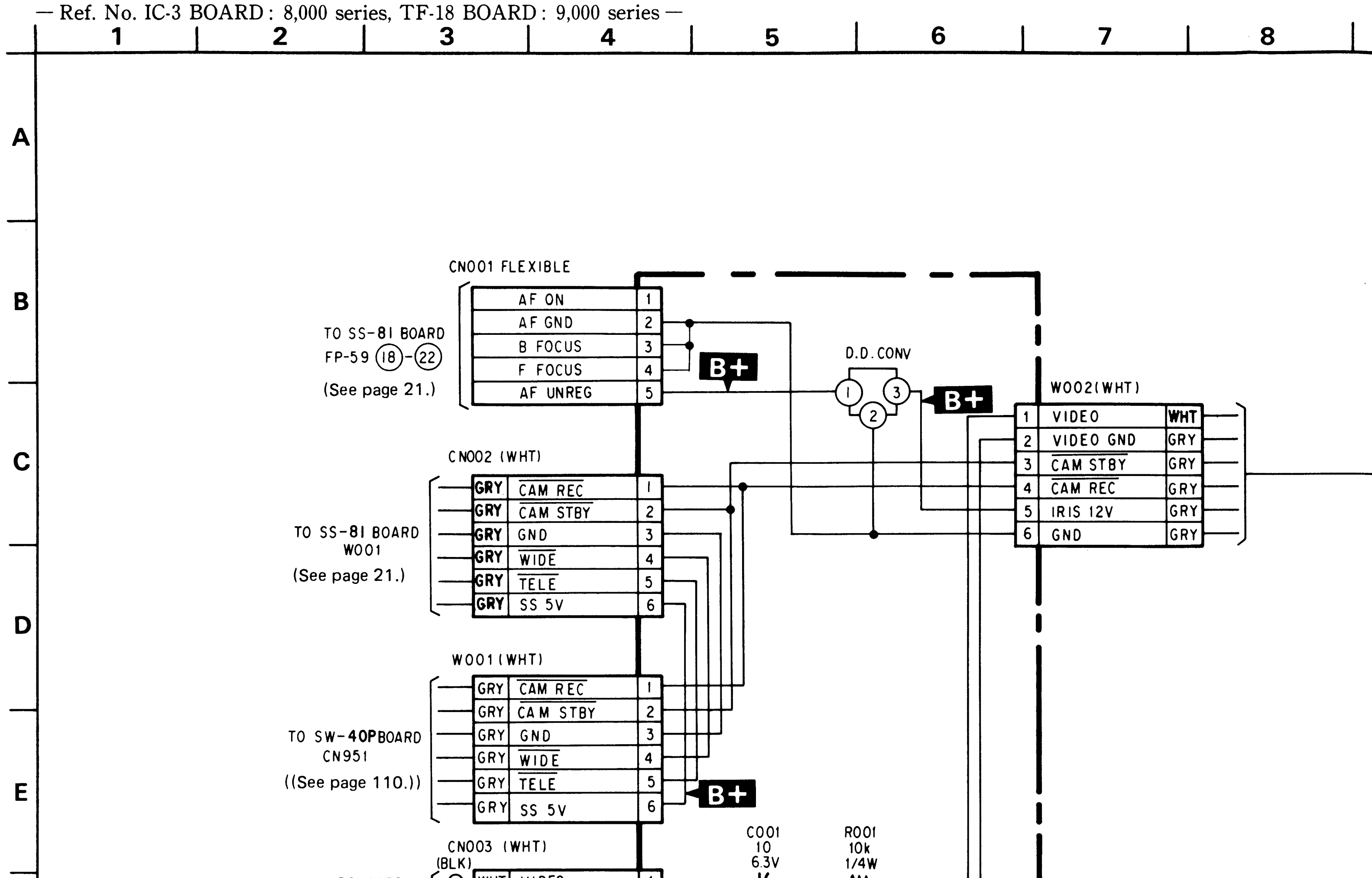

CN002
1 2 3 4 5 6
W001
1 2 3 4 5 6
R001
C001
CN003
1 2
CN001
4 2
5 3 1
W002
1 2 3 4 5 6
DC-DC CONVERTER
1
2
3
1-626-883-
12

TF-18 BOARD


J001
REMOTE
D003
D004
D001
D006
D005
D002
CN102
6 5 4 3 2 1
CN101
1 2 3 4
1-626-884-
12

IC-3 (DC-DC CONVERTER), TF-18 (REMOTE, IRIS OUTPUT) SCHEMATIC DIAGRAM

— Ref. No. IC-3 BOARD : 8,000 series, TF-18 BOARD : 9,000 series —


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
CN001 FLEXIBLE
AF ON 1
AF GND 2
B FOCUS 3
F FOCUS 4
AF UNREG 5
TO SS-81 BOARD
FP-59 (18)-(22)
(See page 21.)
B+
D.D.CONV
1 2 3
B+
W002(WHT)
1 VIDEO WHT
2 VIDEO GND GRY
3 CAM STBY GRY
4 CAM REC GRY
5 IRIS 12V GRY
6 GND GRY
CN002 (WHT)
GRY CAM REC 1
GRY CAM STBY 2
GRY GND 3
GRY WIDE 4
GRY TELE 5
GRY SS 5V 6
TO SS-81 BOARD
W001
(See page 21.)
W001(WHT)
GRY CAM REC 1
GRY CAM STBY 2
GRY GND 3
GRY WIDE 4
GRY TELE 5
GRY SS 5V 6
TO SW-40PBOARD
CN951
((See page 110.))
B+
CN003 (WHT)
(BLK)
WHT VIDEO 1
BLK VIDEO GND 2
TO VA-36BOARD
C395(+),C396(−)
((See page 99,100.))
C001
10
6.3V
R001
10k
1/4W
IC-3 BOARD

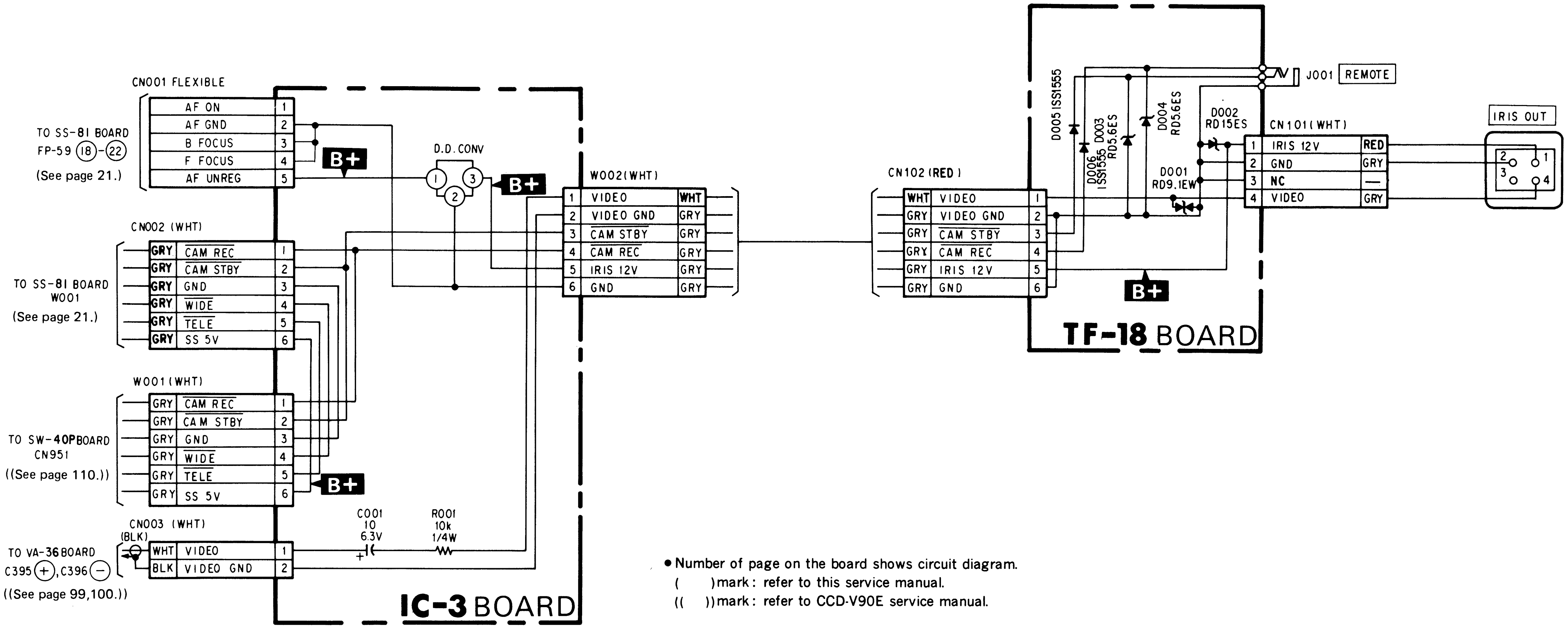
- Number of page on the
( )mark : refer to thi
(( ))mark : refer to CC

In EVC-X10, the connection of harness is different from that c adding IC-3 and TF-18 board. The differences are listed in the

	CCD-V90E	
FP-59 (FLEXIBLE)	FP-59⑱-㉒ (SS-81) ——— CN002 (AF-32)	F
SS-60	W001 (SS-81) ——— CN951 (SW-40P)	
SI-28	————————	
SI-27	————————	
VI-25	————————	C395
TI-2	————————	
TC-32	————————	

IC-3 (DC-DC CONVERTER), TF-18 (REMOTE, IRIS OUTPUT) SCHEMATIC DIAGRAM

— Ref. No. IC-3 BOARD : 8,000 series, TF-18 BOARD : 9,000 series —


CN001 FLEXIBLE
TO SS-81 BOARD
FP-59 ⑱-㉒
(See page 21.)
AF ON 1
AF GND 2
B FOCUS 3
F FOCUS 4
AF UNREG 5
B+
D.D.CONV
1
2
3
B+
CN002 (WHT)
TO SS-81 BOARD
W001
(See page 21.)
GRY CAM REC 1
GRY CAM STBY 2
GRY GND 3
GRY WIDE 4
GRY TELE 5
GRY SS 5V 6
W001 (WHT)
TO SW-40P BOARD
CN951
((See page 110.))
GRY CAM REC 1
GRY CAM STBY 2
GRY GND 3
GRY WIDE 4
GRY TELE 5
GRY SS 5V 6
B+
CN003 (WHT)
(BLK)
TO VA-36 BOARD
C395⊕, C396⊖
((See page 99,100.))
WHT VIDEO 1
BLK VIDEO GND 2
C001
10
6.3V
R001
10k
1/4W
W002 (WHT)
1 VIDEO WHT
2 VIDEO GND GRY
3 CAM STBY GRY
4 CAM REC GRY
5 IRIS 12V GRY
6 GND GRY
IC-3 BOARD
CN102 (RED)
WHT VIDEO 1
GRY VIDEO GND 2
GRY CAM STBY 3
GRY CAM REC 4
GRY IRIS 12V 5
GRY GND 6
D005 1SS155
D006 1SS155
D003 RD5.6ES
D004 RD5.6ES
D002 RD15ES
D001 RD9.1EW
J001 REMOTE
CN101 (WHT)
1 IRIS 12V RED
2 GND GRY
3 NC —
4 VIDEO GRY
B+
TF-18 BOARD
IRIS OUT
1
2
3
4

- Number of page on the board shows circuit diagram.
- (   ) mark : refer to this service manual.
- ((   )) mark : refer to CCD-V90E service manual.

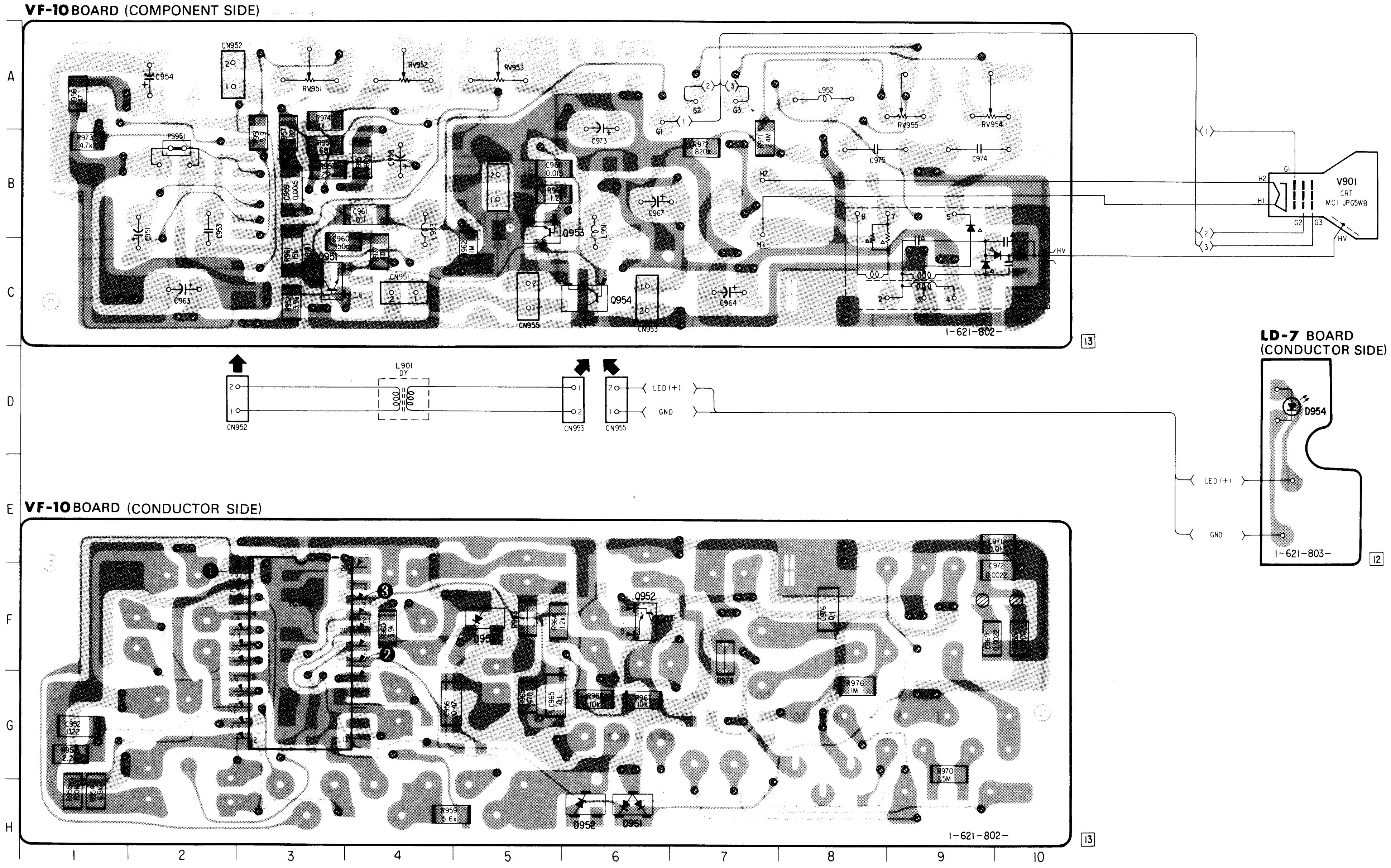
In EVC-X10, the connection of harness is different from that of CCD-V90E by adding IC-3 and TF-18 board. The differences are listed in the following.

	CCD-V90E	EVC-X10
FP-59 (FLEXIBLE)	FP-59⑱-㉒ (SS-81) ——— CN002 (AF-32)	FP-59⑱-㉒ (SS-81) ——— CN001 (IC-3)
SS-60	W001 (SS-81) ——— CN951 (SW-40P)	———————
SI-28	———————	W001 (SS-81) ——— CN002 (IC-3)
SI-27	———————	CN951 (SW-40P) ——— W001 (IC-3)
VI-25	———————	C395⊕, C396⊖(VA-36) ——— CN003 (IC-3)
TI-2	———————	W0002 (IC-3) ——— CN102 (TF-18)
TC-32	———————	CN101 (TF-18) ——— LENS CONNECTOR (IRISOUT)

FI-3 (VIEWFINDER), FC-23 (VIEWFINDER CONNECTING PUT), FC-24 (VIEWFINDER CONNECTING PUT), VF-10 (VIEWFINDER), LD-7 (LED) PRINTED WIRING BOARD

—Ref. No. FI-3, FC-23 and FC-24 BOARDS: 8,000 series, VF-10 BOARD: 9,000 series, LD-7 BOARD: 1,000 series—

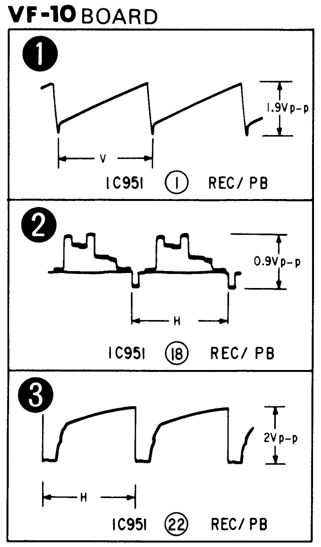
D951	H-6
D952	H-6
D953	F-5
IC951	F-3
Q951	C-3
Q952	F-6
Q953	B-5
Q954	C-6
RV951	A-2
RV952	A-4
RV953	A-5
RV954	A-9
RV955	A-9

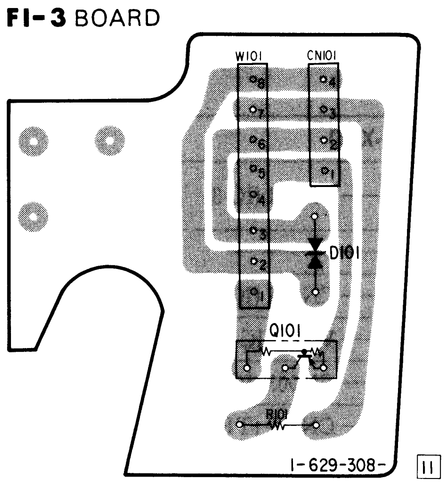

VF-10 BOARD (COMPONENT SIDE)

LD-7 BOARD (CONDUCTOR SIDE)

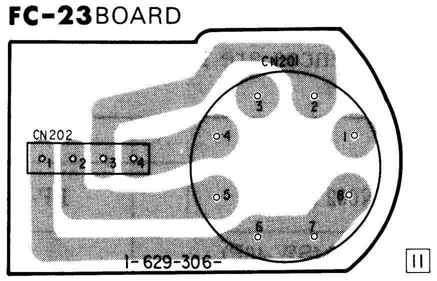
VF-10 BOARD (CONDUCTOR SIDE)

A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
CN952
C954
RV951
RV952
RV953
RV954
RV955
R973 4.7k
PS951
R974
C973
G1
G2
G3
R972 820k
R971 1.8M
L952
C975
C974
V901 CRT M01 JPG5WB
H1
H2
HV
C966 0.01
R961 1.2k
C967
Q953
Q951
Q954
C963
C964
CN951
CN953
CN955
1-621-802-
13
L901 DY
LED(+)
GND
D954
1-621-803-
12
Q952
D953
C971 0.01
C972 0.0022
C976 0.1
R978
R976 1M
R970 1.5M
R959 5.6k
C952 0.22
D952
D951

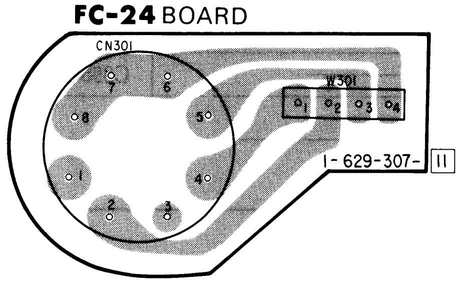

VF-10 BOARD


FI-3 BOARD

W101
CN101
D101
Q101
R101
1-629-308-
11


FC-23 BOARD

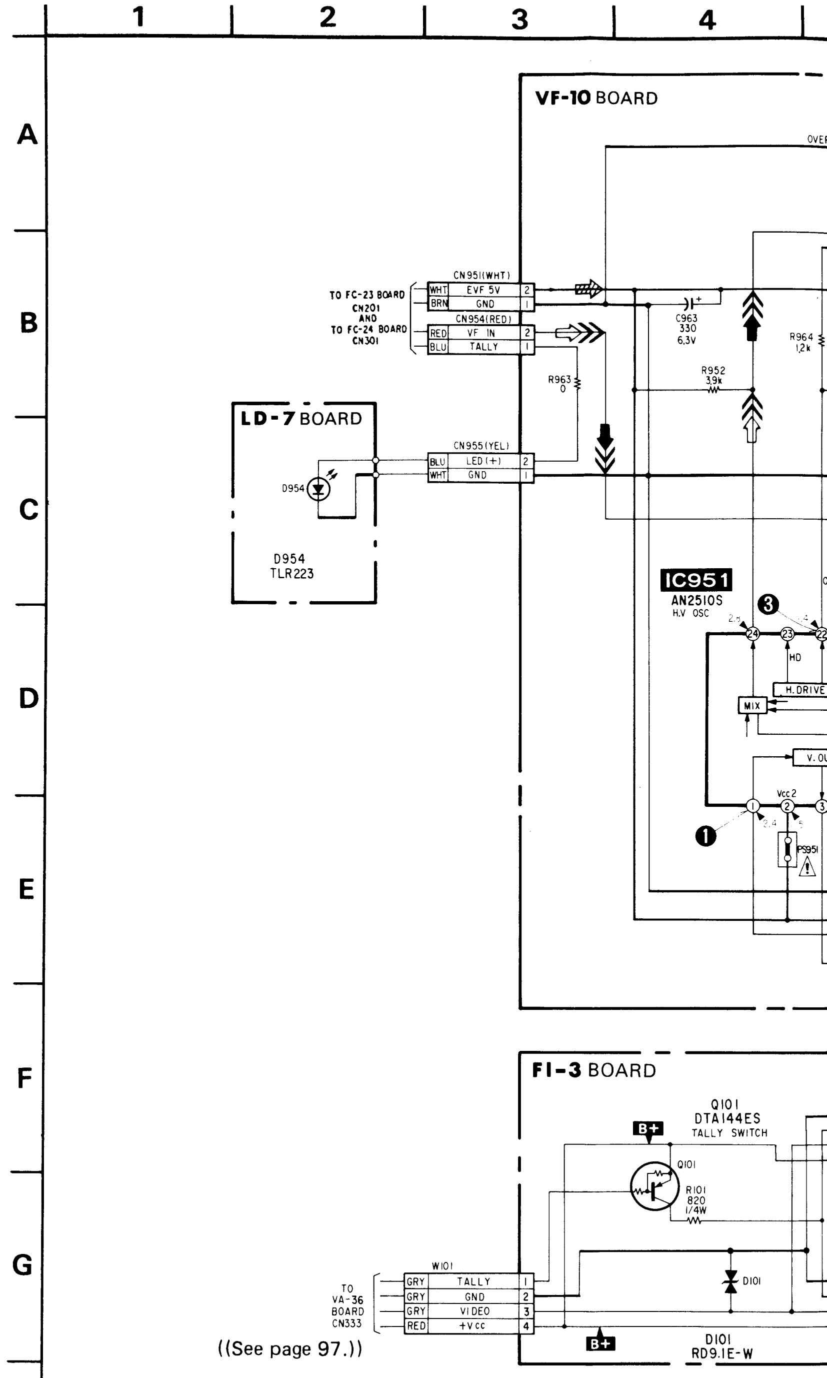
CN201
CN202
1-629-306-
11


FC-24 BOARD

CN301
W301
1-629-307-
11

FI-3 (VIEWFINDER), FC-23 (VIEWFINDER CONNECTING PUT), FC-

—Ref. No. FI-3, FC-23 and FC-24 BOARDS: 8,000 series, VF-10 BOARD: 9,000


1
2
3
4
A
B
C
D
E
F
G
VF-10 BOARD
TO FC-23 BOARD CN201 AND TO FC-24 BOARD CN301
CN951(WHT)
EVF 5V
GND
CN954(RED)
VF IN
TALLY
C963 330 6.3V
R964 12k
R952 39k
R963 0
LD-7 BOARD
CN955(YEL)
LED(+)
GND
D954
D954 TLR223
IC951
AN2510S HV OSC
H.DRIVE
MIX
FI-3 BOARD
Q101 DTA144ES TALLY SWITCH
B+
Q101
R101 820 1/4W
D101
W101
TALLY
GND
VIDEO
+Vcc
TO VA-36 BOARD CN333
D101 RD9.1E-W

((See page 97.))

In EVC-X10, VF-9P and

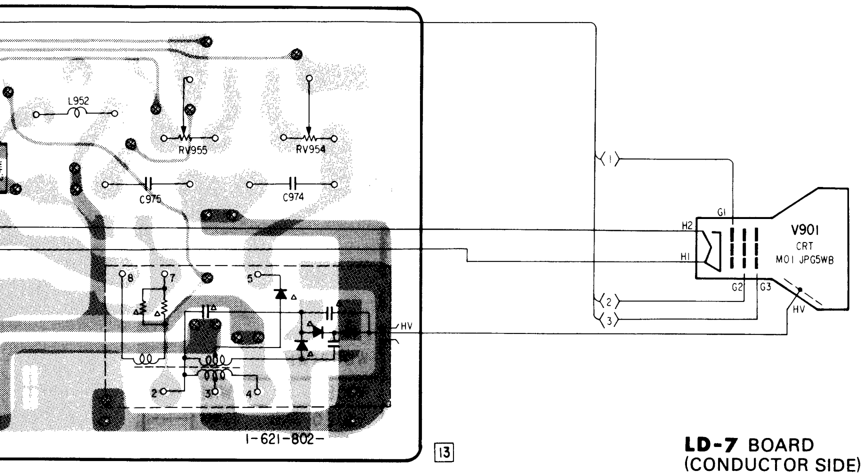
have been added, by mou

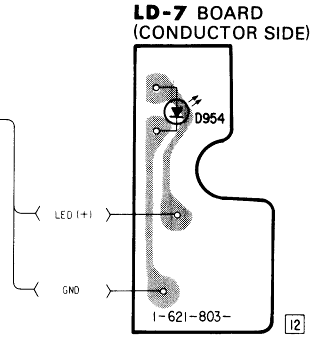
The following show the

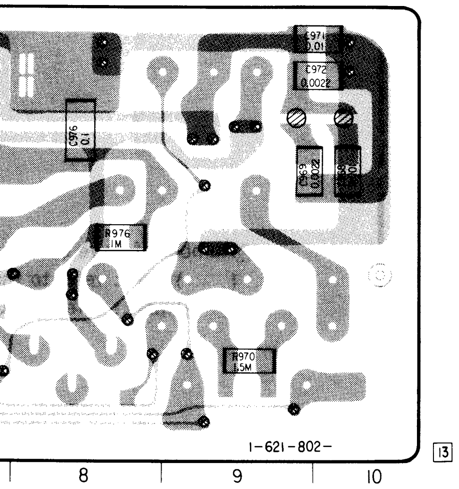
HARNESS	
VE-3	CN33
VF-24	–
CI-16	–
CI-15	–

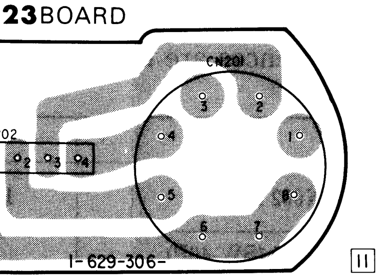
NECTING PUT), VF-10 (VIEWFINDER), LD-7 (LED) PRINTED WIRING BOARD

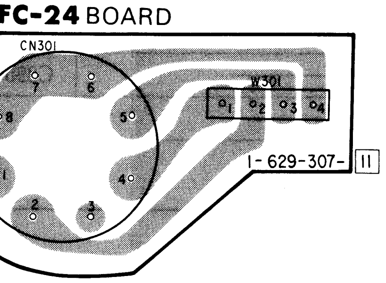
00 series —


L952
RV955
RV954
C975
C974
V901
CRT
M01 JPG5WB
G1
H2
H1
G2
G3
HV
1-621-802-
13


LD-7 BOARD
(CONDUCTOR SIDE)
D954
LED(+)
GND
1-621-803-
12

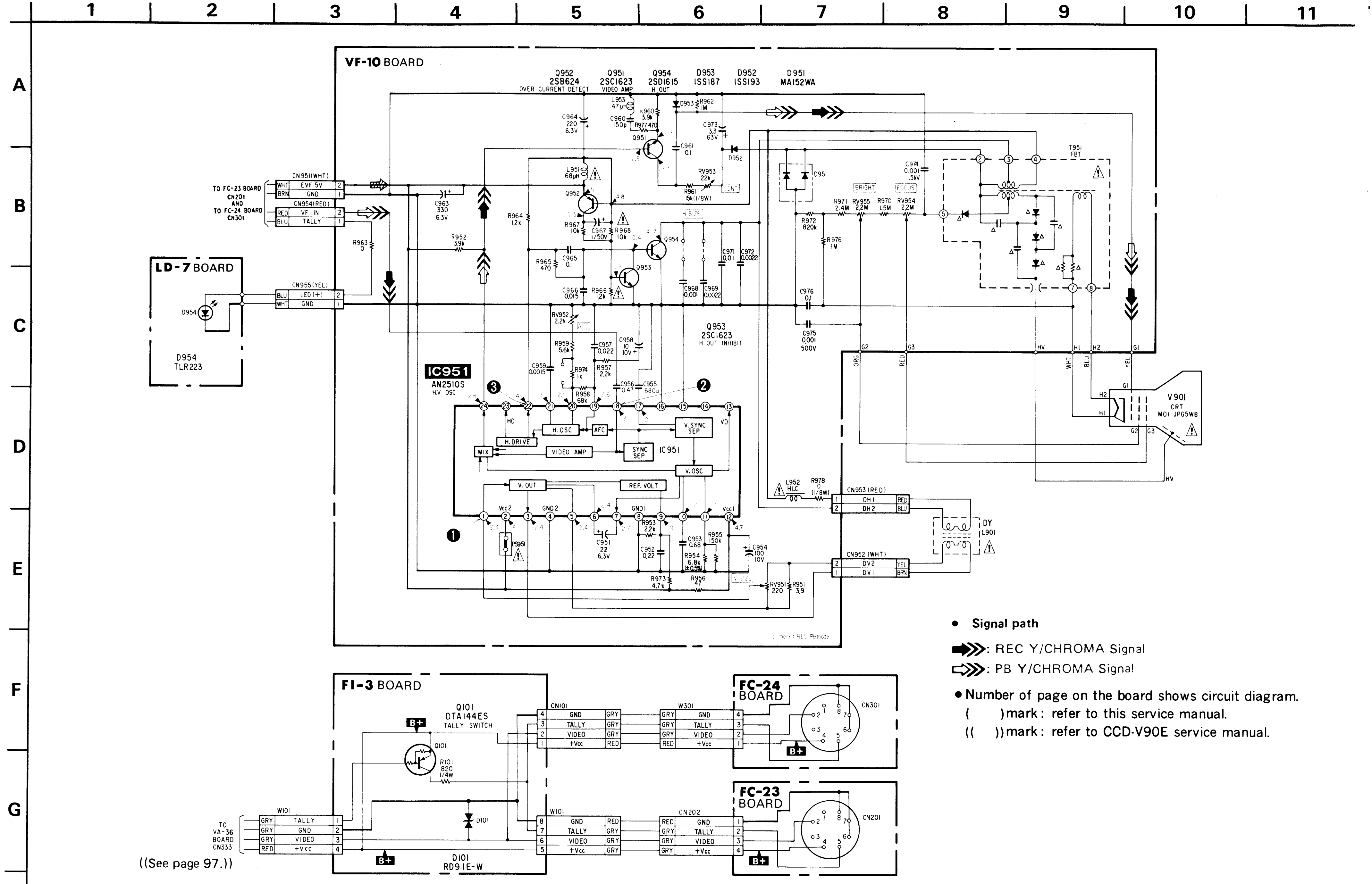

C971
C972
C976
C969
R976
R970
1-621-802-
13
8
9
10


23BOARD
CN201
1-629-306-
11


FC-24 BOARD
CN301
W301
1-629-307-
11

FI-3 (VIEWFINDER), FC-23 (VIEWFINDER CONNECTING PUT), FC-24 (VIEWFINDER CONNECTING PUT), VF-10 (VIEWFINDER), LD-7 (LED) SCHEMATIC DIAGRAM

—Ref. No. FI-3, FC-23 and FC-24 BOARDS: 8,000 series, VF-10 BOARD: 9,000 series, LD-7 BOARD: 1,000 series—


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
VF-10 BOARD
Q952 2SB624 OVER CURRENT DETECT
Q951 2SC1623 VIDEO AMP
Q954 2SD1615 H OUT
D953 1SS187
D952 1SS193
D951 MA152WA
TO FC-23 BOARD CN201 AND TO FC-24 BOARD CN301
CN951(WHT)
EVF 5V
GND
CN954(RED)
VF IN
TALLY
LD-7 BOARD
CN955(YEL)
LED(+)
GND
D954
D954 TLR223
IC951 AN2510S H.V OSC
Q953 2SC1623 H OUT INHIBIT
H.OSC
AFC
V.SYNC SEP
H.DRIVE
MIX
VIDEO AMP
SYNC SEP
IC951
V.OSC
V.OUT
REF. VOLT
T951 FBT
V901 CRT M01 JPG5WB
CN953(RED)
DH1
DH2
CN952(WHT)
DV2
DV1
DY L901
FI-3 BOARD
Q101 DTA144ES TALLY SWITCH
R101 820 1/4W
D101 RD9.1E-W
CN101
GND
TALLY
VIDEO
+Vcc
W301
TO VA-36 BOARD CN333
W101
W102
CN202
FC-24 BOARD
CN301
FC-23 BOARD
CN201
((See page 97.))

- **Signal path**

➡: REC Y/CHROMA Signal

⇨: PB Y/CHROMA Signal

- Number of page on the board shows circuit diagram.
  - ( ) mark: refer to this service manual.
  - (( )) mark: refer to CCD-V90E service manual.

In EVC-X10, VF-9P and LD-8P boards have been deleted, and FI-3, FC-23 and FC-24 boards have been added, by mounting a detouchable viewfinder (VF-10 and LD-7 boards).

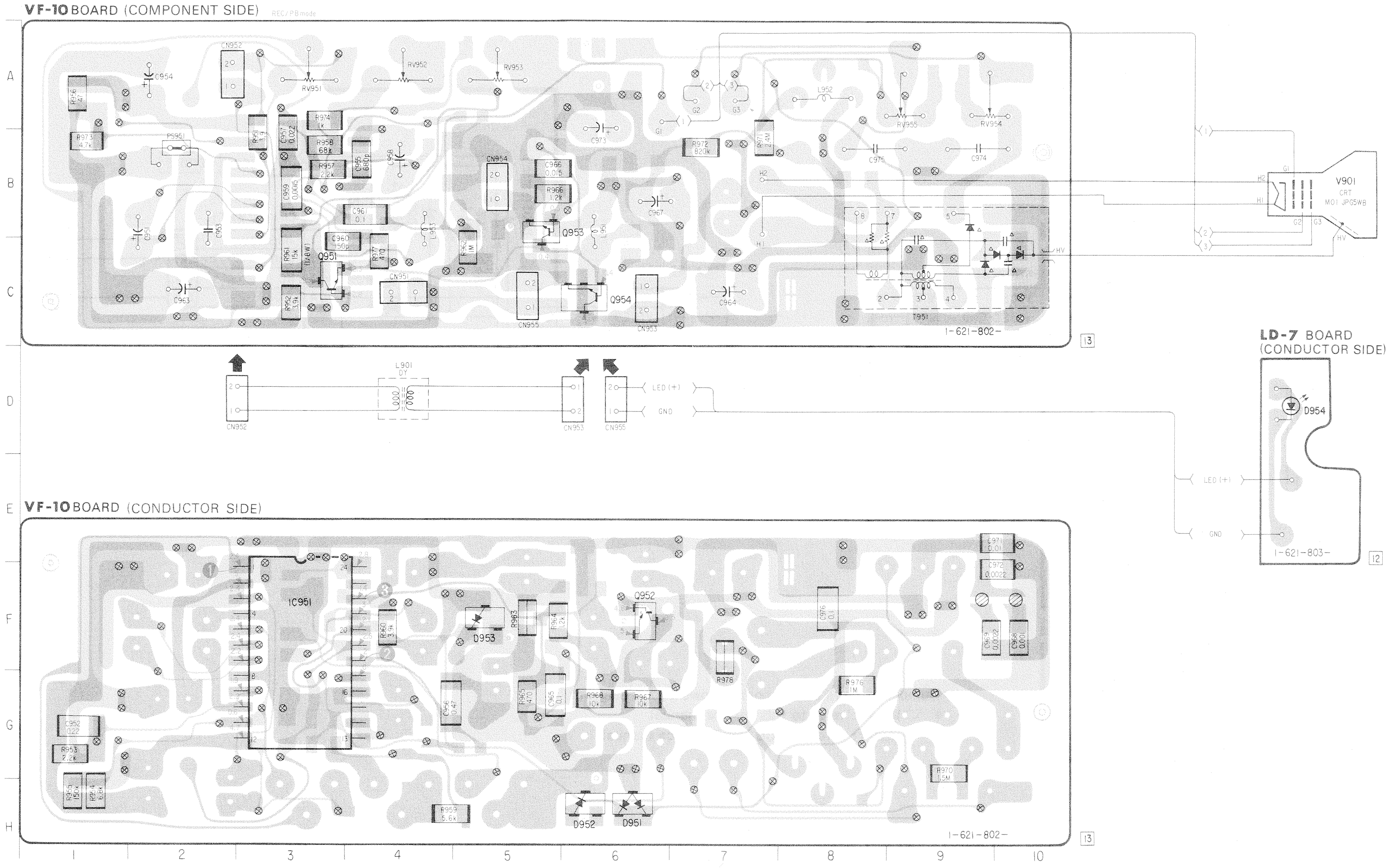
The following show the differences in harness between EVC-X10 and CCD-V90E.

HARNESS	CCD-V90E	EVC-X10
VE-3	CN333 (VA-36) ——— CN903 (VF-9P)	———
VF-24	———	CN333 (VA-36) ——— W101 (FI-3)
CI-16	———	CN101 (FI-3) ——— W301 (FC-24)
CI-15	———	W102 (FI-3) ——— CN201 (FC-23)

FI-3 (VIEWFINDER), FC-23 (VIEWFINDER CONNECTING PUT), FC-24 (VIEWFINDER CONNECTING PUT), VF-10 (VIEWFINDER), LD-7 (LED) PRINTED WIRING BOARD

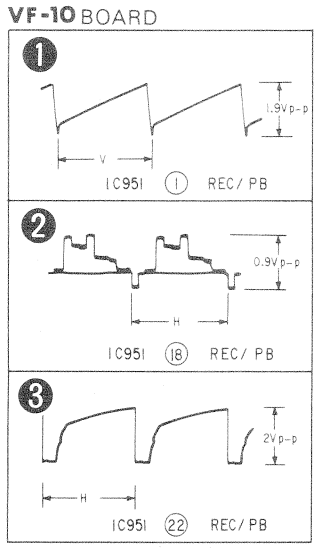
—Ref. No. FI-3, FC-23 and FC-24 BOARDS : 8,000 series, VF-10 BOARD : 9,000 series, LD-7 BOARD : 1,000 series—

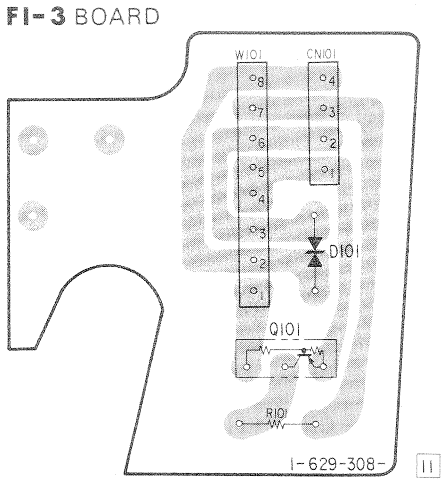
D951	H-6
D952	H-6
D953	F-5
IC951	F-3
Q951	C-3
Q952	F-6
Q953	B-5
Q954	C-6
RV951	A-2
RV952	A-4
RV953	A-5
RV954	A-9
RV955	A-9

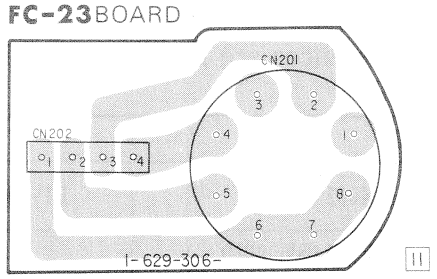

VF-10 BOARD (COMPONENT SIDE)

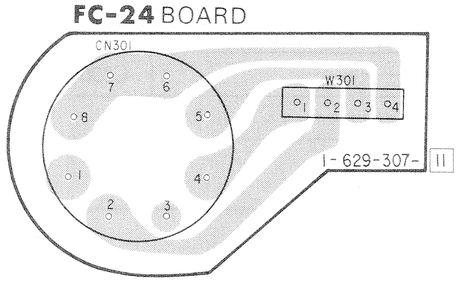
VF-10 BOARD (CONDUCTOR SIDE)

LD-7 BOARD (CONDUCTOR SIDE)
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
IC951
Q951
Q952
Q953
Q954
D951
D952
D953
D954
V901
T951
L901
CN952
CN953
CN955
LED(+)
GND
1-621-802-
1-621-803-


VF-10 BOARD

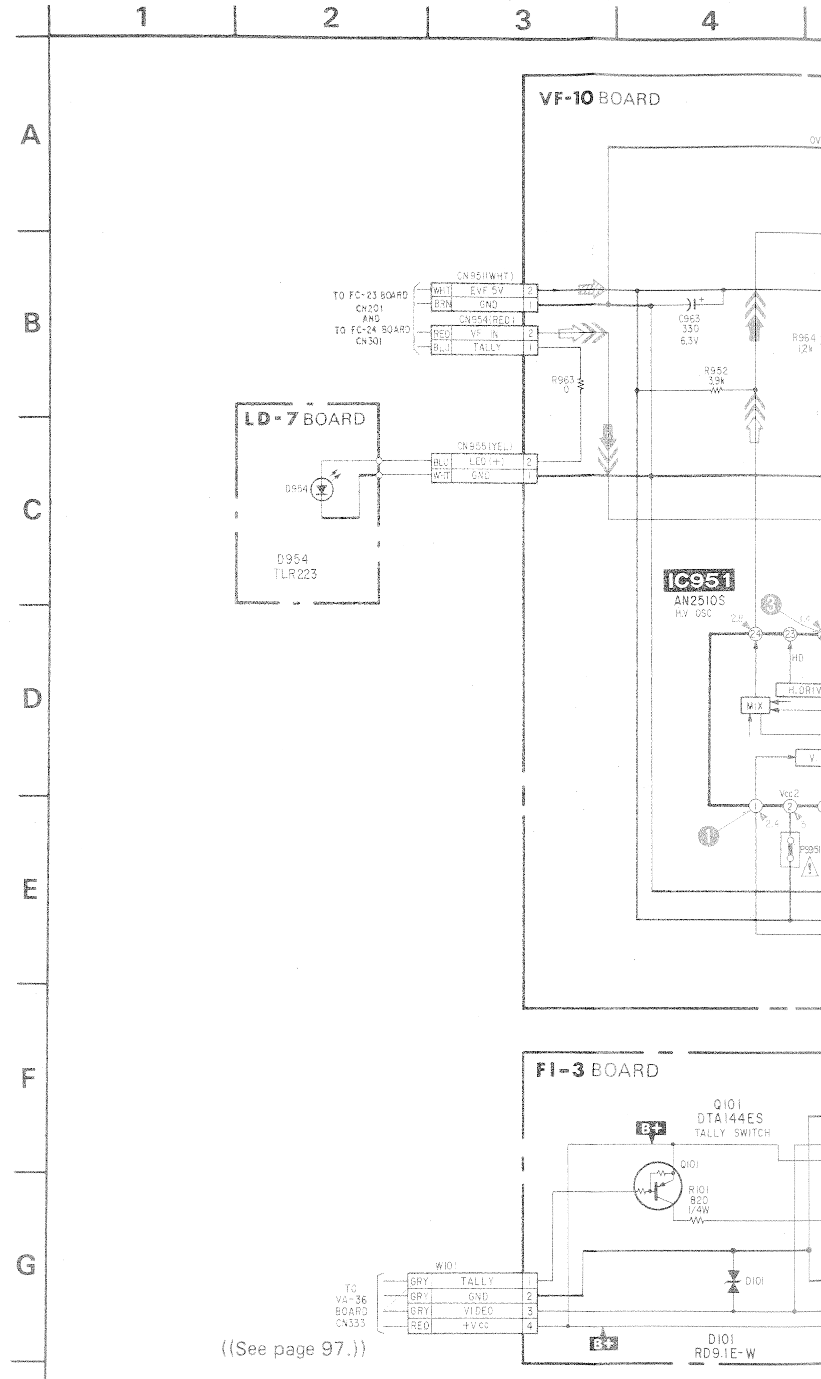

FI-3 BOARD
W101
CN101
D101
Q101
R101
1-629-308-


FC-23 BOARD
CN201
CN202
1-629-306-


FC-24 BOARD
CN301
W301
1-629-307-

FI-3 (VIEWFINDER), FC-23 (VIEWFINDER CONNECTING PUT), FC

—Ref. No. FI-3, FC-23 and FC-24 BOARDS : 8,000 series, VF-10 BOARD : 9,00


1
2
3
4
A
B
C
D
E
F
G
VF-10 BOARD
LD-7 BOARD
FI-3 BOARD
TO FC-23 BOARD CN201 AND TO FC-24 BOARD CN301
CN951(WHT)
EVF 5V
GND
CN954(RED)
VF IN
TALLY
CN955(YEL)
LED(+)
GND
D954 TLR223
IC951 AN2510S
Q101 DTA144ES TALLY SWITCH
D101 RD9.1E-W
TO VA-36 BOARD CN333
W101
TALLY
GND
VIDEO
+Vcc
((See page 97.))

In EVC-X10, VF-9P and

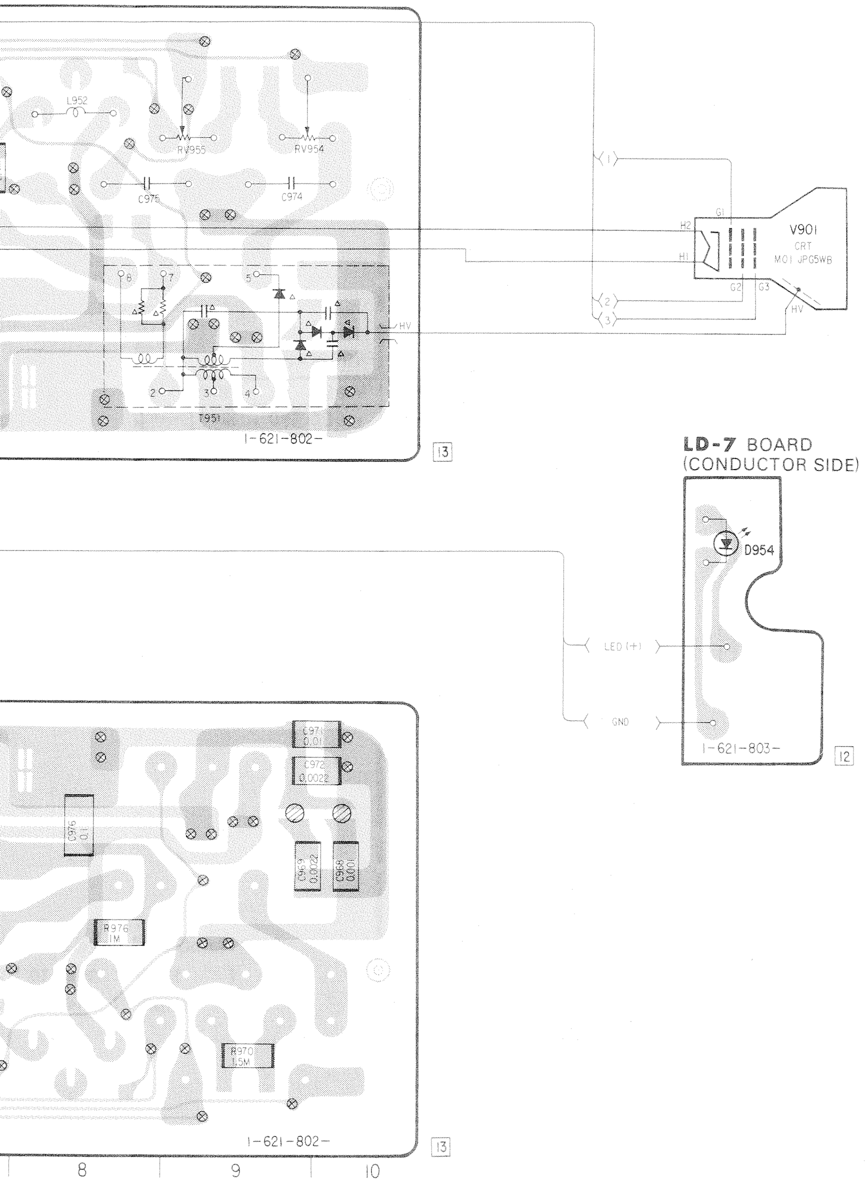
have been added, by mo

The following show the

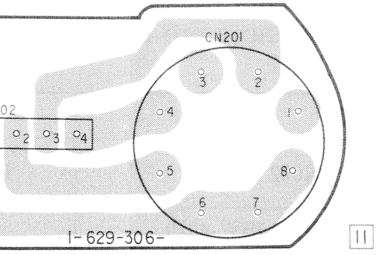
HARNESS	
VE-3	CN3
VF-24	
CI-16	
CI-15	

NECTING PUT), VF-10 (VIEWFINDER), LD-7 (LED) PRINTED WIRING BOARD

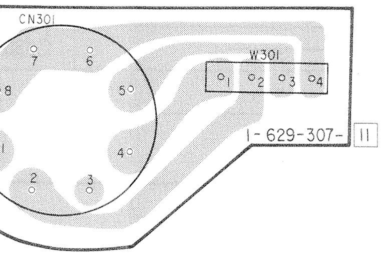
00 series —


V901
CRT
M01 JPG5WB
T951
1-621-802-
LD-7 BOARD
(CONDUCTOR SIDE)
D954
LED(+)
GND
1-621-803-
1-621-802-
8
9
10

23BOARD

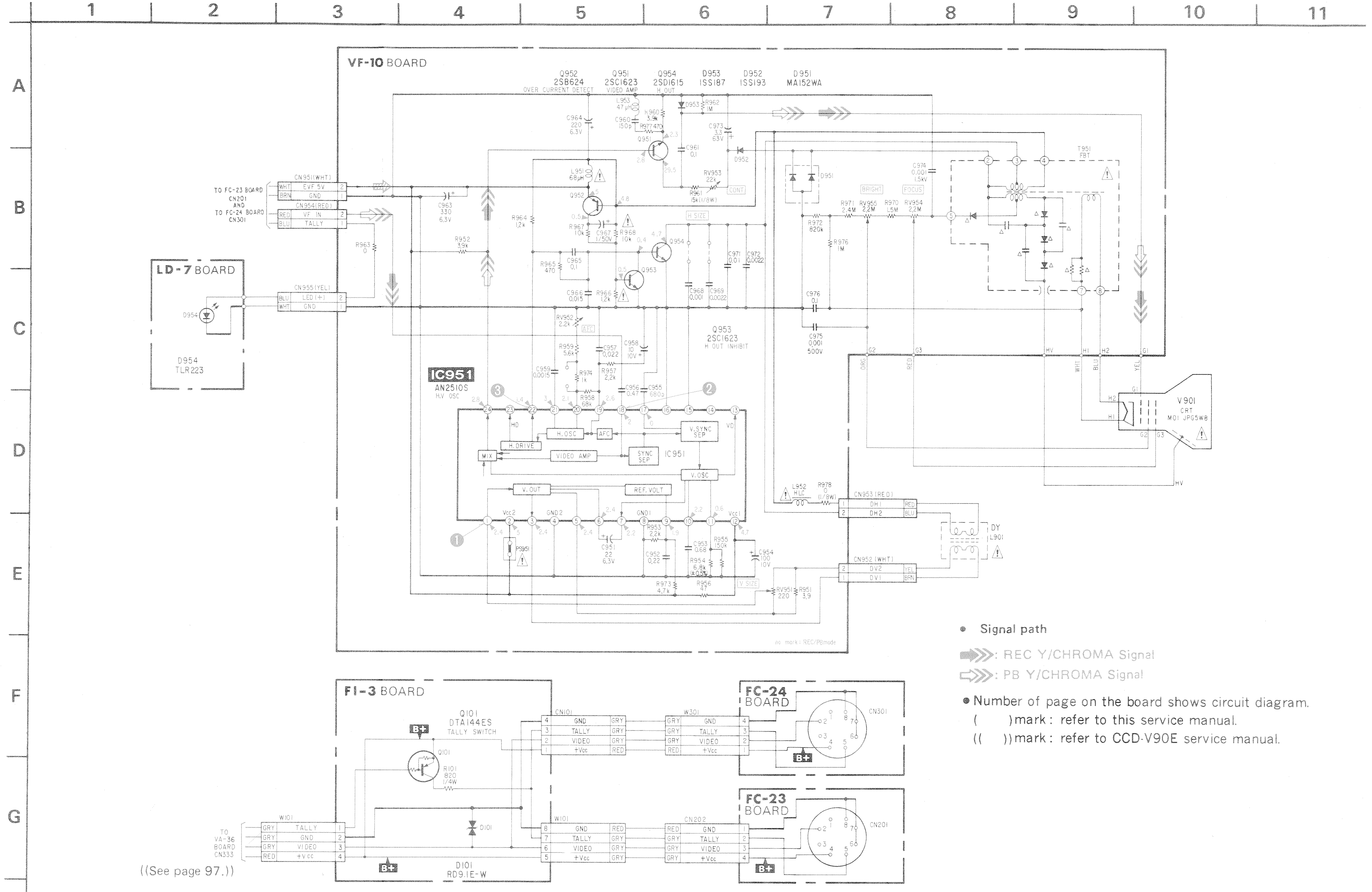

CN201
1-629-306-

FC-24 BOARD


CN301
W301
1-629-307-

FI-3 (VIEWFINDER), FC-23 (VIEWFINDER CONNECTING PUT), FC-24 (VIEWFINDER CONNECTING PUT), VF-10 (VIEWFINDER), LD-7 (LED) SCHEMATIC DIAGRAM

—Ref. No. FI-3, FC-23 and FC-24 BOARDS : 8,000 series, VF-10 BOARD : 9,000 series, LD-7 BOARD : 1,000 series —


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
VF-10 BOARD
Q952 2SB624 OVER CURRENT DETECT
Q951 2SC1623 VIDEO AMP
Q954 2SD1615 H OUT
D953 1SS187
D952 1SS193
D951 MA152WA
Q953 2SC1623 H OUT INHIBIT
IC951 AN2510S H.V OSC
H.OSC
AFC
V.SYNC SEP
H.DRIVE
MIX
VIDEO AMP
SYNC SEP
IC951
V.OSC
V.OUT
REF.VOLT
T951 FBT
V901 CRT M01 JPG5WB
DY L901
LD-7 BOARD
D954 TLR223
TO FC-23 BOARD CN201 AND TO FC-24 BOARD CN301
CN951(WHT)
CN954(RED)
CN955(YEL)
CN953(RED)
CN952(WHT)
FI-3 BOARD
Q101 DTA144ES TALLY SWITCH
D101 RD9.1E-W
TO VA-36 BOARD CN333
W101
CN101
W102
FC-24 BOARD
W301
CN301
FC-23 BOARD
CN202
CN201
GND
TALLY
VIDEO
+Vcc
((See page 97.))

- Signal path

➡: REC Y/CHROMA Signal

⇨: PB Y/CHROMA Signal

- Number of page on the board shows circuit diagram.

( )mark : refer to this service manual.

(( ))mark : refer to CCD-V90E service manual.

In EVC-X10, VF-9P and LD-8P boards have been deleted, and FI-3, FC-23 and FC-24 boards have been added, by mounting a detouchable viewfinder (VF-10 and LD-7 boards).

The following show the differences in harness between EVC-X10 and CCD-V90E.

HARNESS	CCD-V90E	EVC-X10
VE-3	CN333 (VA-36)——CN903 (VF-9P)	———
VF-24	———	CN333 (VA-36)——W101 (FI-3)
CI-16	———	CN101 (FI-3)——W301 (FC-24)
CI-15	———	W102 (FI-3)——CN201 (FC-23)

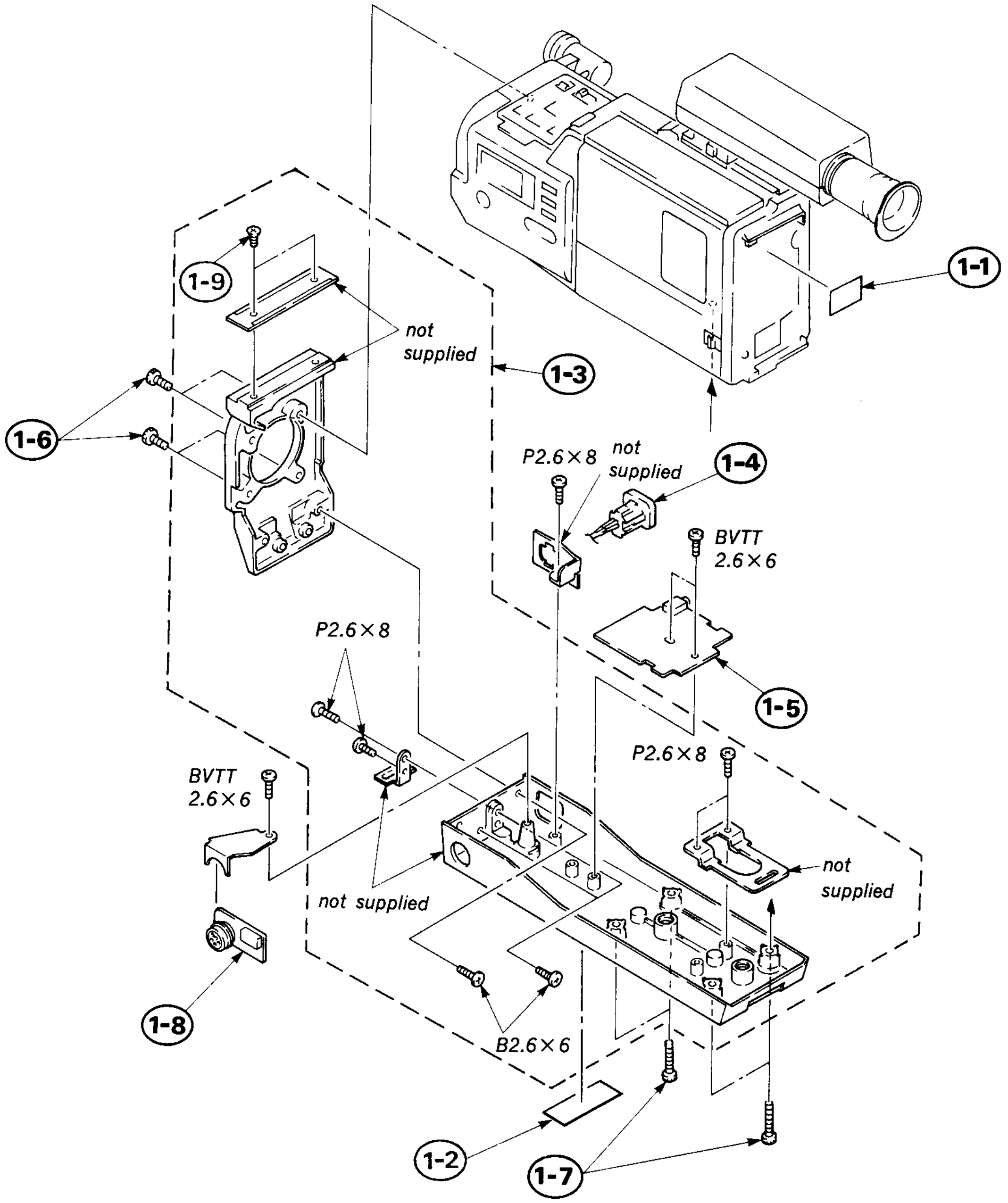
SECTION 5
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

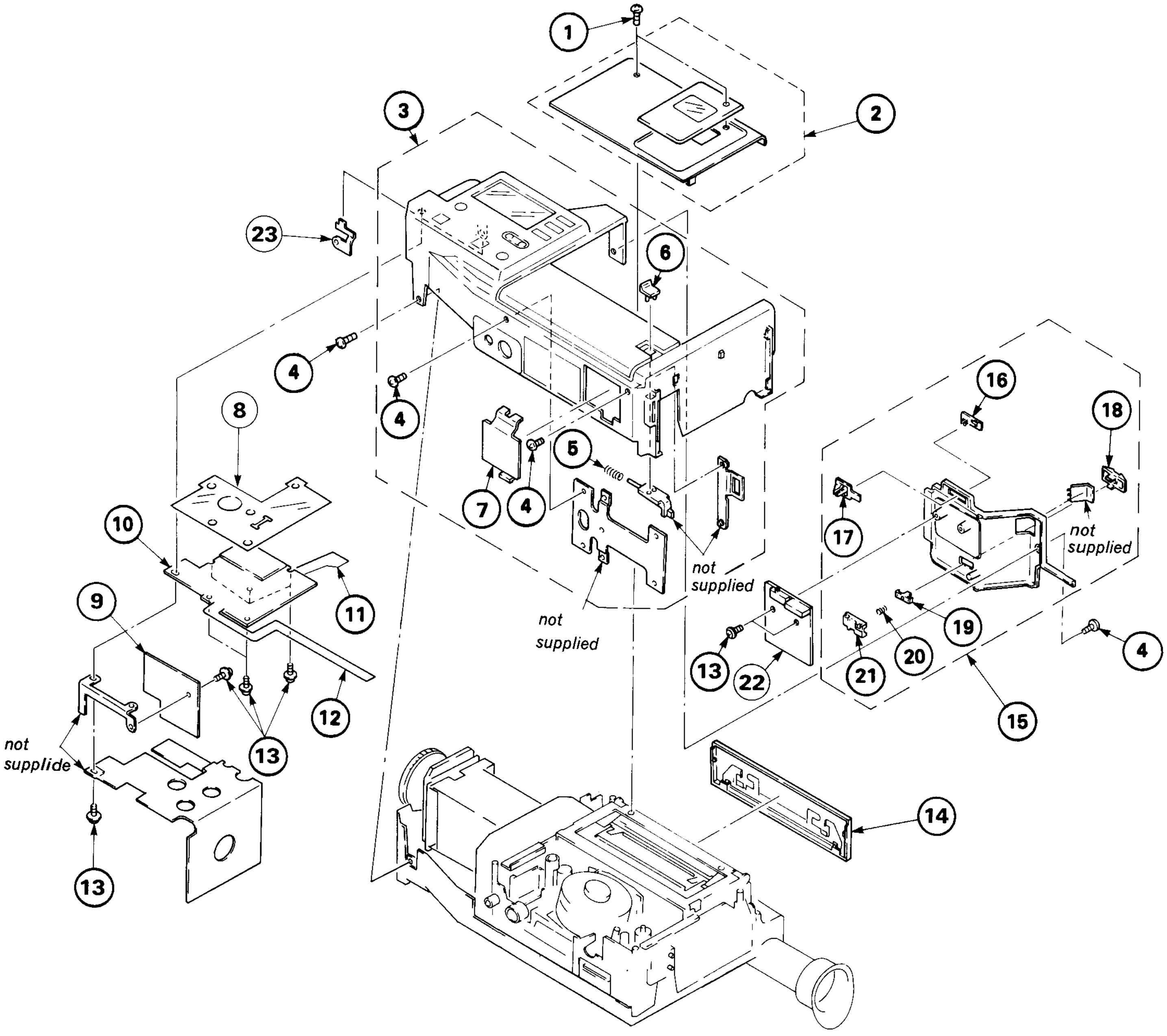
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

5-1. FRAME (A) L ASSEMBLY


1-1
1-9
not supplied
1-3
1-6
P2.6×8
not supplied
1-4
BVTT 2.6×6
1-5
P2.6×8
P2.6×8
BVTT 2.6×6
not supplied
not supplied
1-8
B2.6×6
1-2
1-7

No.	Part No.	Description	Remark
1-1	*3-719-683-01	LABEL, BATTERY FITTING	
1-2	*3-727-165-01	LABEL, MODEL NUMBER (AEP)	
1-3	*A-7080-695-A	FRAME (A) ASSY, L	
1-4	A-7080-516-A	CONNECTOR ASSY, IRIS	
1-5	*A-7070-693-A	TF-18 BOARD, COMPLETE	
1-6	3-727-161-01	BOLT (M2.6X8), HEXAGON SOCKET	
1-7	3-727-161-11	BOLT (M2.6X15), HEXAGON SOCKET	
1-8	*1-629-306-11	FC-23 BOARD	
1-9	3-727-150-01	SCREW (+K) (M2.6X5), PRECISION	

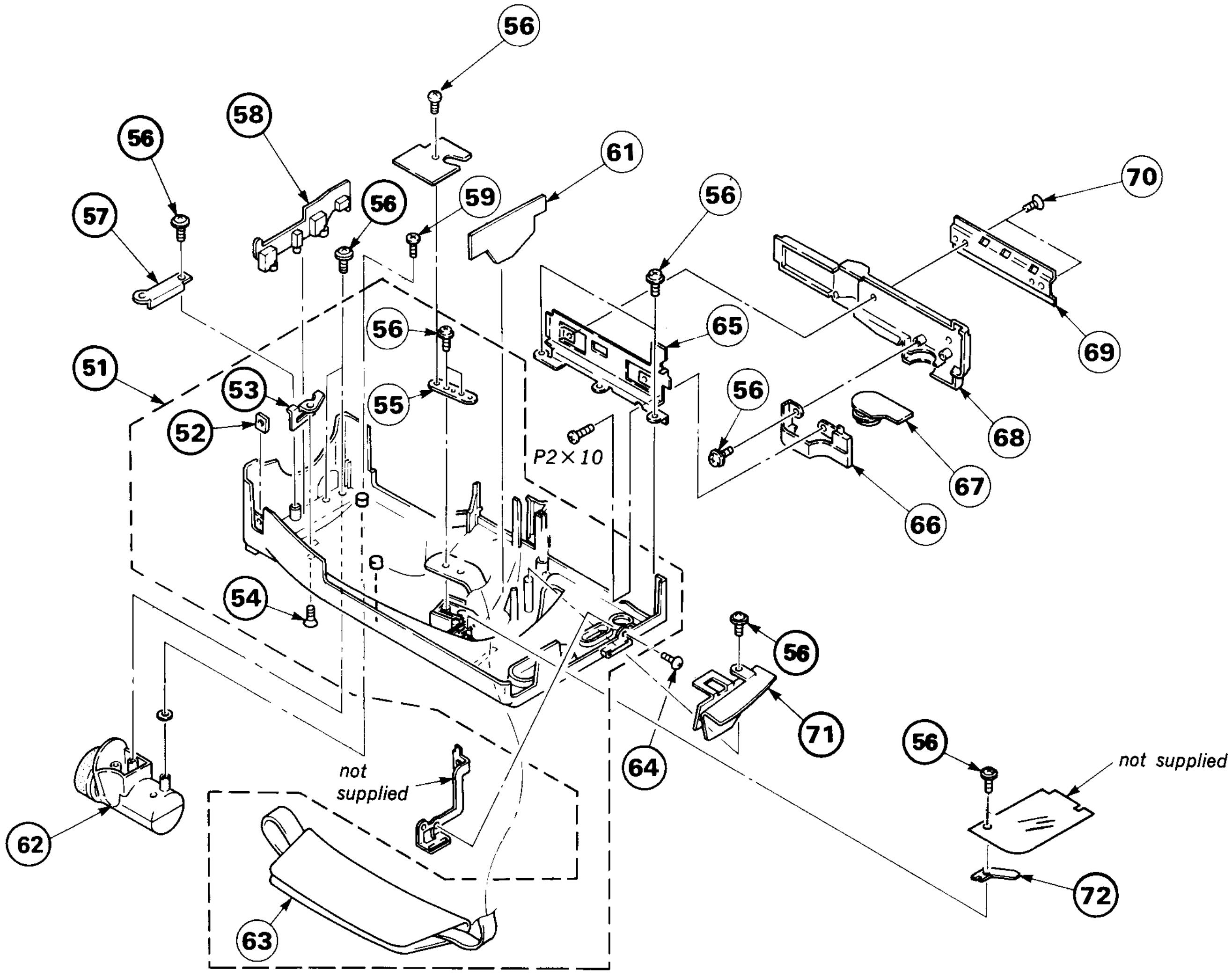
5-1-1. CABINET (R) ASSEMBLY


1
2
3
23
6
4
4
8
16
18
5
10
7
4
17
not supplied
not supplied
11
9
not supplied
19
13
22
20
21
4
12
15
not supplide
13
14
13

No.	Part No.	Description	Remark
1	3-713-791-01	SCREW (M1.7X5), TAPPING, P2	
2	X-3713-988-1	LID ASSY, CASSETTE	
3	X-3713-989-1	CABINET (R) SUB ASSY	4-7
4	3-719-381-11	SCREW (M2X5)	
5	3-426-508-00	SPRING, COMPRESSION	
6	3-716-458-01	KNOB, BATTERY RELEASE	
7	*3-718-273-01	LID, BATTERY CASE	
8	*3-721-729-01	SHEET, INSULATING, IO	
9	*A-7051-185-A	IC-3 BOARD, COMPLETE	
10	*A-7061-449-A	FD-4P (A) BOARD, COMPLETE	
12	1-622-941-11	FP-75 FLEXIBLE BOARD	

No.	Part No.	Description	Remark
13	3-669-480-21	+ PTPWH 2	
14	X-3712-199-1	LID ASSY, LS	
15	X-3713-768-1	CABINET (UPPER) SUB ASSY	16-21
16	3-719-826-01	BUTTON, EJECT	
17	3-719-827-01	EJECT LOCK	
18	3-718-226-01	BUTTON, POWER	
19	3-718-257-01	PUSH BUTTON, POWER	
20	3-303-973-00	SPRING, COMPRESSION	
21	3-718-227-01	PLATE, BLIND, POWER	
22	*1-622-927-21	FK-4P BOARD	
23	3-725-371-01	BRACKET, CABINET	

5-2. GRIP CABINET, VF ASSEMBLY

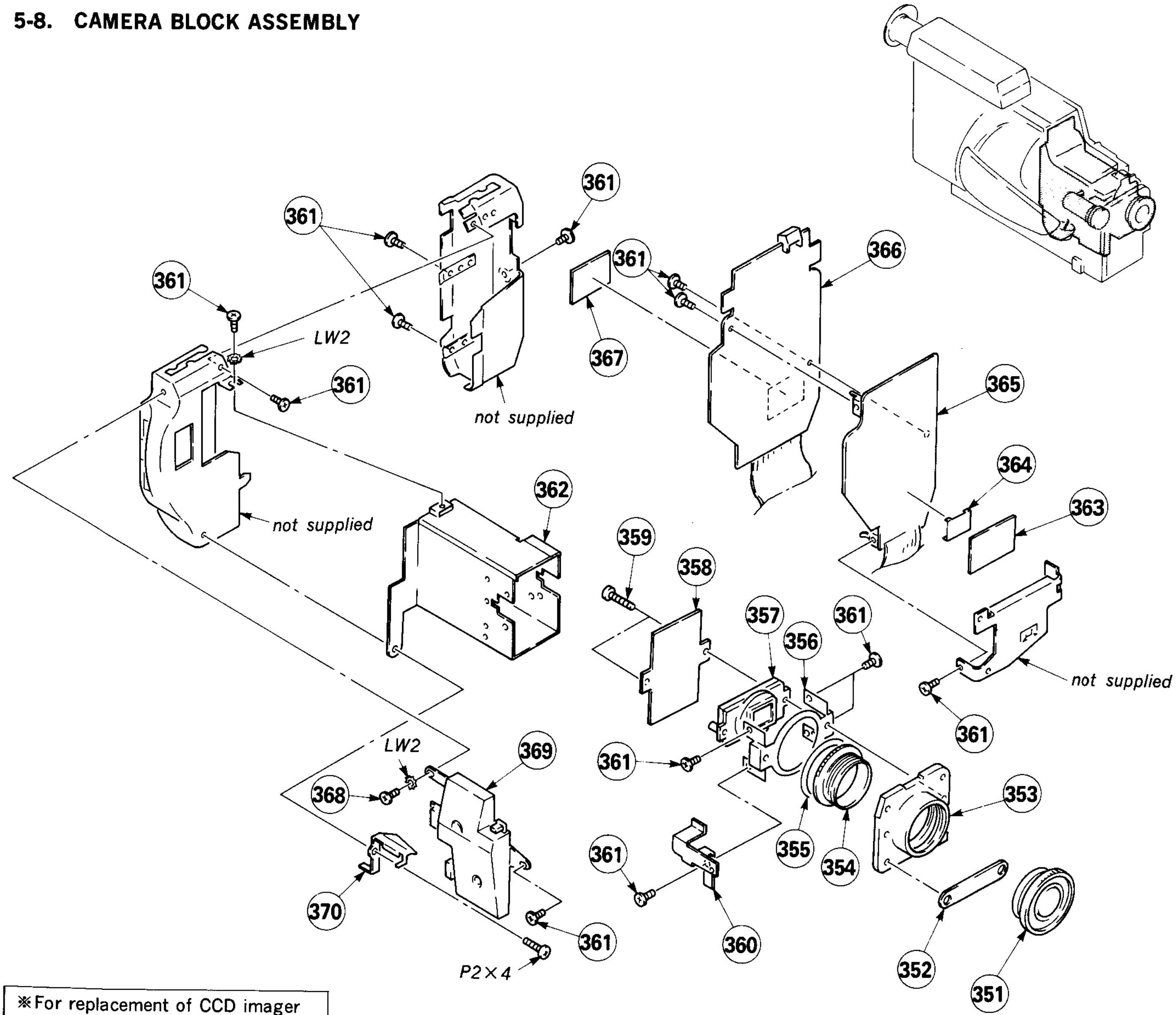

56
58
56
57
56
59
61
56
70
51
56
53
55
65
69
52
56
68
P2×10
67
66
54
56
71
64
56
not supplied
62
not supplied
63
72

No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
51	X-3713-990-2	GRIP SUB ASSY, CABINET	52-56, 63	62	1-542-107-11	MICROPHONE (C-2022)	
52	3-718-233-01	NUT, PLATE		63	3-718-286-01	BELT, GRIP	
53	3-718-265-01	STOPPER		64	3-719-381-11	SCREW (M2X5)	
54	3-719-831-01	SCREW (M2X6)		65	*3-727-117-01	PLATE, FIXED, VF, CABINET	
55	3-725-320-01	RETAINER		66	3-727-137-01	COVER, EVF CONNECTOR	
56	3-719-381-11	SCREW (M2X5)		67	*1-629-307-11	FC-24 BOARD	
57	*3-719-823-01	PROTECTOR, JACK		68	3-727-142-01	CABINET (VF)	
58	*A-7060-938-A	MC-17P BOARD, COMPLETE		69	3-713-782-01	RAIL, GUIDE	
59	3-719-694-01	SCREW (2.6X8), +B TAPPING (B)		70	3-727-150-01	SCREW (+K) (M2.6X5), PRECISION	
60	*1-629-308-11	FI-3 BOARD		71	X-3712-161-1	KNOB ASSY, SP	
61	*A-7060-937-A	SW-40P BOARD, COMPLETE		72	*3-719-849-01	PROTECTOR, SW	

5-7. MAIN BOARD ASSEMBLY (Page. 153)

No.	Description	CCD-V90E part No.	EVE-X10E part No.	Remark
303	SS-81 BOARD, COMPLETE	⋆ A-7060-920-A	⋆ A-7061-510-A	304,305

5-8. CAMERA BLOCK ASSEMBLY


361
361
361
361
LW2
361
366
367
365
not supplied
364
363
362
not supplied
359
358
357
361
356
not supplied
361
361
LW2
369
368
353
361
355
354
370
361
360
P2×4
352
351

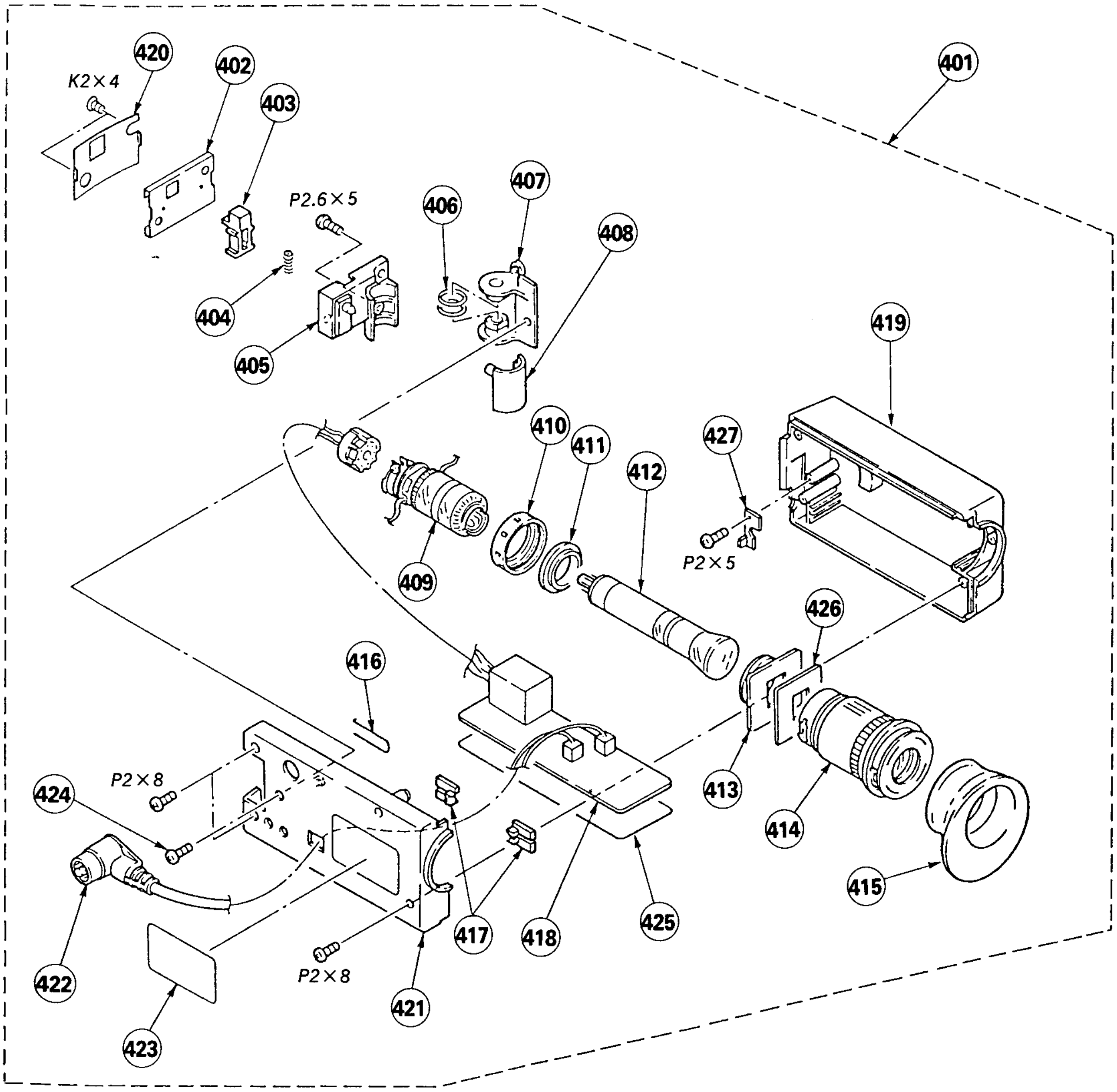
※For replacement of CCD imager read carefully the CAUTIONS FOR REPLACEMENT OF CCD IMAGER on page 14.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remark
351	2-042-385-00	CAP, C MOUNT	
352	*3-725-364-01	SPACER (A)	
353	3-725-365-01	HOLDER, MOUNT	
354	*3-727-136-01	RING (F), FB	
355	*3-727-148-01	FILTER, FB	
356	*3-725-395-01	CASE (B), SHIELD	
357	※8-750-010-89	IU024AK-11A (CCD IMAGER)	
358	*1-626-882-11	CC-17 BOARD	
359	2-621-755-31	BOLT (M2X14), HEXAGON SOCKET	
360	*3-725-394-01	STOPPER	

No.	Part No.	Description	Remark
361	3-719-696-01	SCREW (M2X3), SPECIAL HEAD	
362	*3-725-396-01	CASE (A), SHIELD	
363	A-7068-082-A	DT-62P BOARD, COMPLETE (HIC)	
364	*X-3712-160-1	PLATE ASSY, SHIELD, VC	
365	*A-7060-925-A	VC-23P BOARD, COMPLETE	
366	*A-7060-926-A	VC-24P BOARD, COMPLETE	
367	A-7068-094-A	CP-19P BOARD, COMPLETE (HIC)	
368	3-719-601-01	SCREW (B2X5), TAPPING	
369	⚠.1-464-815-31	CONVERTER UNIT, DC-DC	
370	*3-721-716-01	HOLDER, DD CONVERTER	

5-9. EVF ASSEMBLY



Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description	Remark
401	A-7019-051-A	EVF ASSY (VF-256) (AEP MODEL)	402-427
	A-7019-054-A	EVF ASSY (VF-257) (UK MODEL)	402-427
402	3-713-550-01	LINING, EVF	
403	3-713-742-01	BUTTON, LOCK	
404	3-480-102-00	SPRING, COMPRESSION	
405	X-3712-054-1	HINGE (A) ASSY, EVF	
406	3-146-316-11	RING, RUBBER	
407	3-713-741-01	BASE, HINGE	
408	3-713-556-01	HINGE (B), EVF	
409	⚠.1-451-296-21	DEFLECTION YOKE (BLACK&WHITE)	
410	3-713-534-01	RETAINER,CRT	
411	*3-712-660-01	RING, RUBBER	
412	⚠.1-546-061-11	CATHODE-RAY TUBE, B/W	
413	3-712-183-01	COVER,CRT	
414	A-7080-263-A	FINDER BLOCK ASSY	

Ref.No	Part No.	Description	Remark
415	3-713-548-01	CUP, EYE	
416	3-713-533-01	SHAFT, HINGE LOCK	
417	3-712-184-01	RETAINER, CORD	
418	*A-7060-777-A	VF-10 BOARD, COMPLETE	427
419	X-3712-052-1	CABINET (UPPER)ASSY, EVF	
420	3-713-781-01	LINING, SPRING	
421	X-3712-053-2	CABINET (LOWER) ASSY, EVF	
422	1-556-824-61	CORD, CONNECTION (WITH PLUG) 8P	
423	*3-713-519-01	LABEL, MODEL NUMBER, EVF (AEP MODEL)	
	*3-713-518-01	LABEL, MODEL NUMBER, EVF (UK MODEL)	
424	3-713-559-01	SCREW (2×6)	
425	*3-714-005-01	SHEET, INSULATING	
426	3-713-985-01	PLATE, CRT	
427	*1-621-803-11	LD-7 BOARD	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

VF-10 LD-7

Ref.No	Part No.	Description	Remark
	*A-7060-777-A	VF-10 BOARD, COMPLETE **********************	
	1-526-926-21	SOCKET ASSY, CRT	
		CAPACITOR	
C951	1-126-153-11	ELECT 22MF 20%	6.3V
C952	1-163-081-00	CERAMIC CHIP 0.22MF	25V
C953	1-136-175-00	FILM 0.68MF 5%	50V
C954	1-124-584-00	ELECT 100MF 20%	10V
C955	1-163-137-00	CERAMIC CHIP 680PF 10%	50V
C956	1-162-637-11	CERAMIC CHIP 0.47MF	16V
C957	1-163-037-11	CERAMIC CHIP 0.022MF 10%	25V
C958	1-126-157-11	ELECT 10MF 20%	10V
C959	1-163-209-00	CERAMIC CHIP 0.0015MF 5%	50V
C960	1-163-121-00	CERAMIC CHIP 150PF 5%	50V
C961	1-163-077-00	CERAMIC CHIP 0.1MF	50V
C963	1-124-442-00	ELECT 330MF 20%	6.3V
C964	1-124-587-11	ELECT 220MF 20%	6.3V
C965	1-163-077-00	CERAMIC CHIP 0.1MF	50V
C966	1-163-023-00	CERAMIC CHIP 0.015MF 10%	50V
C967	1-126-160-11	ELECT 1MF 20%	50V
C968	1-163-009-11	CERAMIC CHIP 0.001MF 10%	50V
C969	1-163-013-91	CERAMIC CHIP 0.0022MF 10%	50V
C971 ⚠.	1-163-021-00	CERAMIC CHIP 0.01MF 10%	50V
C972 ⚠.	1-163-013-91	CERAMIC CHIP 0.0022MF 10%	50V
C973	1-124-971-11	ELECT 3.3MF 20%	63V
C974	1-162-697-11	CERAMIC 0.001MF 20%	1.5KV
C975	1-102-038-00	CERAMIC 0.001MF	500V
C976	1-163-077-00	CERAMIC CHIP 0.1MF	50V
		CONNECTOR	
CN951	*1-566-164-11	PIN, CONNECTOR 2P	
CN952	1-506-467-11	PIN, CONNECTOR 2P	
CN953	*1-506-467-11	PIN, CONNECTOR 2P	
CN954	*1-566-164-21	PIN, CONNECTOR 2P	
CN955	*1-506-467-11	PIN, CONNECTOR 2P	
		DIODE	
D951	8-719-400-20	DIODE MA152WA	
D952	8-719-801-48	DIODE 1SS193	
D953	8-719-801-45	DIODE 1SS187	
		IC	
IC951	8-759-403-49	IC AN2510S	
		COIL	
L951 ⚠.	1-408-980-21	INDUCTOR 68UH	
L952 ⚠.	1-459-683-11	COIL, FERRITE (HLC)	
L953	1-408-978-21	INDUCTOR 47UH	
		IC LINK	
PS951 ⚠.	1-532-933-11	LINK, IC (PSM250)	

Ref.No	Part No.	Description	Remark
		TRANSISTOR	
Q951	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q952	8-729-162-44	TRANSISTOR 2SB624-BV4	
Q953	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q954	8-729-106-68	TRANSISTOR 2SD1615A-GP	
		RESISTOR	
R951	1-216-306-11	METAL GLAZE 3.9 5% 1/10W	
R952	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R953	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R954	1-216-671-11	METAL CHIP 6.8K 0.50% 1/10W	
R955	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R956	1-216-017-00	METAL GLAZE 47 5% 1/10W	
R957	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R958	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R959	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R960	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R961	1-216-226-00	METAL GLAZE 15K 5% 1/8W	
R962	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R963	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R964	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R965	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R966 ⚠.	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R967	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R968 ⚠.	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R970	1-216-125-00	METAL GLAZE 1.5M 5% 1/10W	
R971	1-216-130-11	METAL GLAZE 2.4M 5% 1/10W	
R972	1-216-119-00	METAL GLAZE 820K 5% 1/10W	
R973	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R974	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R976	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R977	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R978	1-216-296-00	METAL GLAZE 0 5% 1/8W	
		VARIABLE RESISTOR	
RV951	1-237-431-11	RES, ADJ, CARBON 220	
RV952	1-230-719-11	RES, ADJ, CARBON 2.2K	
RV953	1-230-497-11	RES, ADJ, CARBON 22K	
RV954	1-230-203-00	RES, ADJ, METAL GLAZE 2.2M	
RV955	1-230-203-00	RES, ADJ, METAL GLAZE 2.2M	
		TRANSFORMER	
T951 ⚠.	1-439-396-11	TRANSFORMER ASSY, FLYBACK (FBT)	

****

Ref.No	Part No.	Description	Remark
	*1-621-803-11	LD-7 BOARD ***********	
		DIODE	
D954	8-719-801-26	DIODE TLR223	

****

TF-18 | FC-24 | FI-3 | FC-23 | CC-17

Ref.No	Part No.	Description	Remark
	*A-7070-693-A	TF-18 BOARD, COMPLETE **********************	
		CONNECTOR	
CN101	1-506-469-11	PIN, CONNECTOR 4P	
CN102	1-506-485-11	PIN, CONNECTOR 6P	
		DIODE	
D001	8-719-108-12	DIODE RD9.1EW	
D002	8-719-110-41	DIODE RD15ESB	
D003	8-719-109-87	DIODE RD5.6ESB	
D004	8-719-109-87	DIODE RD5.6ESB	
D005	8-719-911-19	DIODE 1SS119	
D006	8-719-911-19	DIODE 1SS119	
		JACK	
J001	1-565-276-11	JACK, ULTRA SMALL 1P	

****

Ref.No	Part No.	Description	Remark
	*1-629-307-11	FC-24 BOARD ************	
	1-562-183-00	SOCKET 8P	

****

Ref.No	Part No.	Description	Remark
	*1-629-308-11	FI-3 BOARD ***********	
		CONNECTOR	
CN101	1-506-469-11	PIN, CONNECTOR 4P	
		DIODE	
D101	8-719-118-27	DIODE RD9.1EW	
		TRANSISTOR	
Q101	8-729-900-65	TRANSISTOR DTA144ES	
		RESISTOR	
R101	1-249-416-11	CARBON 820 5% 1/4W	

****

Ref.No	Part No.	Description	Remark
	*1-629-306-11	FC-23 BOARD ************	
	1-562-183-00	SOCKET 8P	
	*1-506-483-21	PIN, CONNECTOR 4P	

****

Ref.No	Part No.	Description	Remark
	*1-626-882-11	CC-17 BOARD ************	
	2-621-755-31	BOLT (M2X14), HEXAGON SOCKET	
	*3-725-364-01	SPACER (A)	
	3-725-365-01	HOLDER, MOUNT	
	*3-727-136-01	RING (F), FB	
	3-727-148-01	FILTER, FB	
	7-623-420-07	LW 2, TYPE B	
		CAPACITOR	
C001	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C003	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C004	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C005	1-135-138-91	TANTAL. CHIP 10MF 20% 25V	
C006	1-163-015-00	CERAMIC CHIP 0.0033MF 10% 50V	
		CONNECTOR	
CN001	1-506-489-11	PIN, CONNECTOR 10P	
CN002	*1-506-489-11	PIN, CONNECTOR 10P	
IC601	※8-750-010-89	IU024AK-11A (CCD IMAGER)	
		COIL	
L001	1-410-192-51	INDUCTOR CHIP 1UH	
		TRANSISTOR	
Q001	8-729-105-53	TRANSISTOR 2SK300	
		RESISTOR	
R001	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	

****

※For replacement of CCD imager read carefully the CAUTIONS FOR REPLACEMENT OF CCD IMAGER on page 14.

When indicating parts by reference number, please include the board name.

HARDWARE LIST

Ref.No	Part No.	Description	Remark
		SCREW	
	7-621-255-25	SCREW +P 2X4	
	7-621-255-45	SCREW +P 2X6	
	7-621-555-10	SCREW +K 2X3	
	7-621-591-00	SCREW +K 2X4	
	7-621-773-95	SCREW +B 2.6X6	
	7-621-775-20	SCREW +P 2.6X5	
	7-627-452-28	SCREW, PRECISION +K 2X4	
	7-627-452-48	SCREW, PRECISION +K 2X2.5	
	7-627-850-17	SCREW, PRECISION +P 1.4X2.5	
	7-627-552-07	SCREW, PRECISION +P 1.7X2.5	
	7-627-852-18	SCREW, PRECISION +P 1.7X4 TYPE3	
	7-627-852-38	SCREW, PRECISION +P1.7X1.8TYPE3	
	7-682-564-09	SCREW +B 4X14	
	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
	7-685-106-19	SCREW +P 2X10 TYPE2 NON-SLIT	
	7-685-133-19	SCREW +P 2.6X6 TYPE2 SLIT	
	7-685-134-19	SCREW +P 2.6X8 TYPE2 SLIT	
	7-685-147-19	SCREW +P 3X10 TYPE2 SLIT	
	7-685-135-19	SCREW +BTP 2.6X10 TYPE2 N-S	
	7-621-770-67	SCREW +BVTT 2.6X6 (S)	
		NUT	
	7-622-205-05	NUT M2 TYPE2	
		WASHER	
	7-623-210-22	SW 4, TYPE 2	
	7-623-420-07	LW 2, TYPE B	
		STOP RING	
	7-624-101-01	STOP RING 1.2 (E TYPE)	
	7-624-102-04	STOP RING 1.5, TYPE -E	
	7-624-108-04	STOP RING 4.0, TYPE -E	

Sony Corporation
Personal Video Group

English
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CCD-V90E

SERVICE MANUAL

AEP Model
UK Model
Australian Model
E Model

SONY
PRECISION CCD
PAL
Video 8
Handycam PRO
AF

Handycam PRO
Video 8

SPECIFICATIONS

System

Video recording system	Rotary two heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	PAL colour, CCIR standards
Usable cassette	8 mm video format cassette
Tape speed	SP: Approx. 20.051 mm/sec. LP: Approx. 10.058 mm/sec.
Recording or playback time	SP: 90 min. (P5–90) LP: 180 min. (P5–90)
Fast forward time	Approx. 6 min. 15 sec. (P5-90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electric viewfinder (0.7″ black and white)
Lens	Combined 6 × power zoom lens f = 12–72 mm, F1.6 with macro Filter diameter: 46 mm
Auto focus system	TCL
Colour temperature	Preset values OUTDOOR: 5,800 K INDOOR: 3,200 K Auto: From the light at a tungsten lamp to the light on a slightly overcast day.
Minimum illumination	7 lux
Illumination range	7 lux–100,000 lux (0.46–9,294 footcandles)
Recommended illumination	More than 100 lux (9.3 footcandles)
Aperture correction	Automatic, manual (variable)

Input and output connector

Output jacks	Video output: phono 1 Vp-p, 75 ohms unbalanced, sync negative Audio output: phono −10 dBs, at output impedance less than 2.2 kilohms
Earphone jack	Minijack, 8-ohm impedance
Remote connector	5-pin connector
MIC jack	Minijack, −66 dBs, low impedance With 2.5–3 V DC output, impedance 6.8 kilohms
Microphone power output jack	Special minijack, 5 V DC

Display in the viewfinder

Mode indication	REC/STBY/OUTDOOR/INDOOR/shutter speed
Caution indication	BATTERY/DEW/TAPE END/CAUTION/CASSETTE
Date or time indication	Small 8 characters Date: From Jan. 1, 1987 to Dec. 31, 2015 Time: 24 hour cycle
Clock	Crystal lock
Memory back-up	Approx. 2 years using the CR2025 lithium battery

—Continued on next Page—

V 3413

8 VIDEO CAMERA RECORDER

SONY®

MICROFILM

VIDEO

General

Power requirements	6 V DC
Power consumption	6.3W (camera recording) including the viewfinder
Installation	Horizontally, vertically
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	−20°C to +60°C (−4°F to +140°F)
Dimensions	Approx. 99 × 136 × 330 mm (w/h/d) (4 × 5⅜ × 13 in.)
Weight	Approx. 1.1 kg (2 lb 7 oz) excluding the battery and cassette Approx. 1.3 kg (2 lb 14 oz) including the NP-55 battery and cassette
Microphone	Electret condenser microphone, omni-directional monaural type

Accessories supplied
Lithium battery (1)
Lens cap (1)

Optional accessories
Carrying case LCH-V50
Battery pack NP-55, NP-77, NP-22, NP-4000
AC power adaptor AC-V55
Car battery cord DCC-16AE
DC pack DCP-55
Battery adaptor NPA-22
Connecting cable VMC-910MS/920MS (2 phono to 3 phono), VMC-710M/720M (2 phono to 2 phono), VMC-262M (2 phono to 6-pin), VMC-2104M (4 phono to 21-pin)
Microphone ECM-Z200, ECM-K120
Wireless remote control kit RM-151KA
External microphone shoe SAD-100
Remote Commander RM-94
Viewfinder adaptor VFA-50
Close-up lens kit VF-150K
Teleconversion lens VCL-1546A
Wide-conversion lens VCL-0746A
Filter kit VF-46M
Tripod VCT-400

Design and specifications are subject to change without notice.

Your dealer may not handle some of the above listed optional accessories. Please ask the dealer for detailed information about the optional accessories available in your country.

Note
This appliance conforms with EEC Directives 76/889 and 82/499 regarding interference suppression.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

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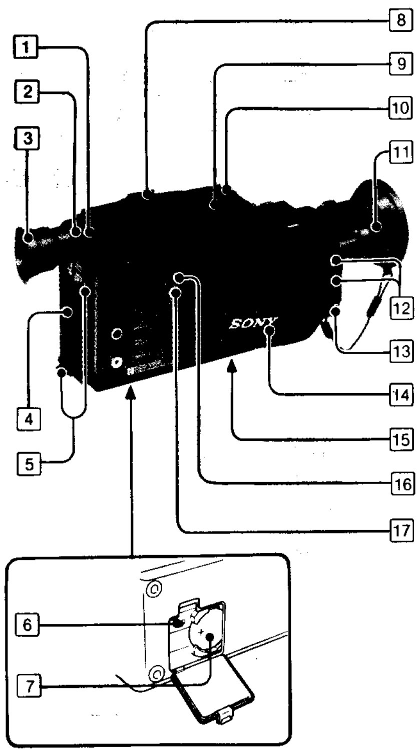
SECTION 1
GENERAL

1-1. LOCATION AND FUNCTION OF PARTS AND CONTROLS

A-1



For details on the use of each control, refer to the pages indicated in the circle.

Video camera section

A-1

1 **Viewfinder**
The picture being recorded or played back can be monitored in monochrome through this viewfinder. Data such as the function mode, caution indicators, date, time, are also displayed on the viewfinder screen.

2 **Viewfinder lens adjustment lever ⑧**
Adjust to your eyesight to assure good focus. Be sure to adjust this lever when shooting for the first time.

3 **Eyecup ⑧**

4 **Battery mounting surface ⑦**

5 **Hooks for shoulder strap**

6 **Recording mode/EDIT switch**
Switch it depending on the operating mode.

Mode	Recording	Playback	Editing
Setting	SP LP	EDIT	EDIT
Function	Recording mode switch	EDIT switch	

7 **Lithium battery compartment ⑨**

8 **Accessory shoe ㉑**
Attach an optional external microphone, video·light, etc.

9 **Power zoom button ⑮**
Press for smooth power zooming between wide-angle (W) and telephoto (T) positions.

10 **White balance sensor**
This is the sensor for the auto white balance adjustment. Be careful not to cover it.

11 **Built-in microphone**

12 **MIC jack and DC OUT (microphone power output) jack ㉑**
Connect an external microphone.
The MIC jack accepts Sony "plug-in-power" microphones and supplies power to them.

13 ⑨ **(earphone) jack** (mini)

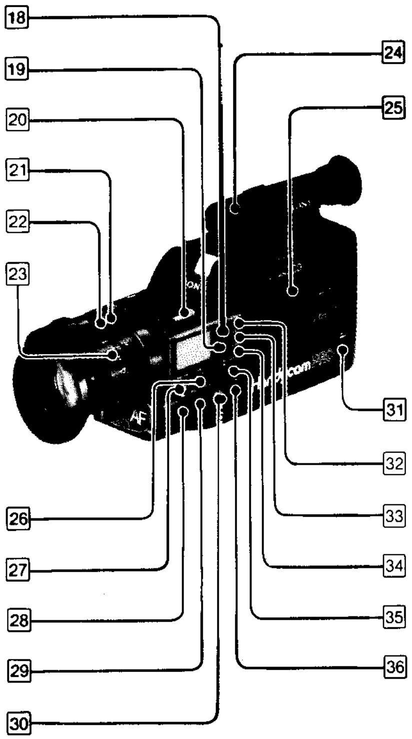
14 **Grip strap ⑧**

15 **Tripod receptacle**
Attach an optional tripod.

16 **STANDBY switch ⑩**
Before recording, slide this switch up.

17 **START/STOP button ⑩**
Press to start or stop camera recording.

A-2



A-2

18 **DATA SET button ⑨**
Used to set the date and time.

19 **ADJUST button ⑨**
Used to set the date and time.

20 **EJECT (cassette eject) switch ●**

21 **Macro set button ⑮**
Keeping this button depressed, move the manual zoom lever within the MACRO range for close-ups.

22 **Manual zoom lever ⑮**

23 **Focus ring ⑫**
For manual focusing, turn this ring to focus while looking through the viewfinder.
This ring will be turned automatically during auto focusing.

24 **Camera recording/battery lamp**
Lights during camera recording. It blinks when the battery is exhausted.

25 **Cassette compartment ⑧**

26 **IRIS control ⑭**
Normally set to the center position (green mark).

27 **SHUTTER SPEED button ⑬**
Used to select the shutter speed.

28 **AUTO LOCK switch ⑩**
Normally set to the left AUTO LOCK position (green mark).

29 **FOCUS button ⑫**
Used for manual focusing.

30 **WHITE BAL (white balance) button ●**
Used for manual balance adjustment.

31 **BATT (battery eject) switch ⑦**

32 **ZERO MEM (zero memory) button ●●**
Used to memorize the counter zero point.

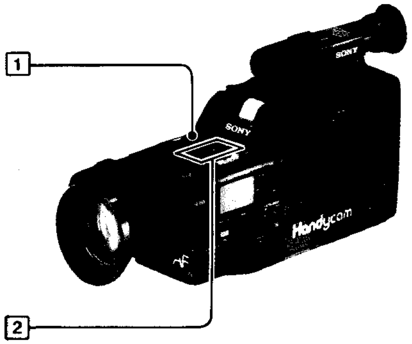
33 **RESET button ⑲**
Pess to reset the counter to zero.

34 **SELECT button ⑨⑪**
Select the counter, date or time display.

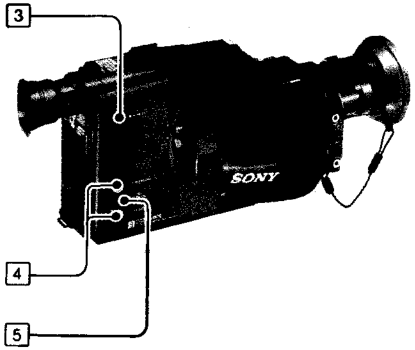
35 **EDITSEARCH button ⑫⑯●**

36 ⊜ **(recording review) button ●**

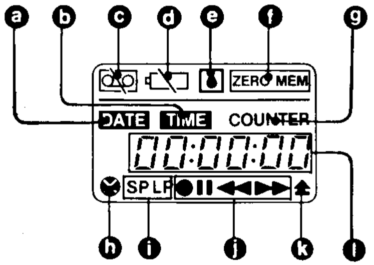
A-3



A-4



A-5



Video cassette recorder section and connectors

A-3

1 **POWER switch**
CAMERA: For camera recording.
PLAYER: For tape playback and **tape editing.**
OFF: To turn off the power.

2 **Tape transport buttons** ⑱
◀◀ FF (fast-forward), ◁ (playback), ▶▶ REW (rewind), ◀❚❚ (frame-by-frame/slow playback), ■ (stop), ❚❚ (pause)

A-4

3 **REMOTE connector** (5-pin) ㉑
Connect an optional Remote Commander, editing controller, etc.

4 **AUDIO OUT/VIDEO OUT jacks** (phono) ⑯[illegible]

5 **RFU DC OUT jack** (special mini) ⑯⑲
Connect the RFU-89E/AS RFU adaptor, etc.

A-5

Display window
ⓐ DATE mode indicator
ⓑ TIME mode indicator
ⓒ Lights steadily when no cassette is inserted. Blinks when the tape reaches its end during camera recording or when a recording is started with a cassette with its safety tab out inserted.
ⓓ Blinks when the battery is weak.
ⓔ Blinks when moisture has condensed inside the unit.
ⓕ Displayed when the ZERO MEM button is pressed.
ⓖ COUNTER mode indicator
ⓗ Blinks when the video heads have been contaminated.
ⓘ Tape speed indicator
ⓙ Tape operation mode indicators
● (recording), ❚❚ (pause), ◀◀ (fast-forward), ▶▶ (rewind), ◀ (playback)
ⓚ Blinks when moisture has condensed on the tape, when the tape reaches its end during camera recording, etc. to indicate that the cassette should be removed.
ⓛ Tape counter, date or time indication

1-2. POWER SOURCES

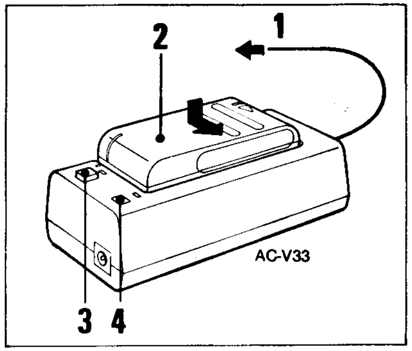
SELECTION OF POWER SOURCES

This manual shows the operations on one of the following power sources. For operation on other power sources, see the instruction manual furnished with the equipment to be used.

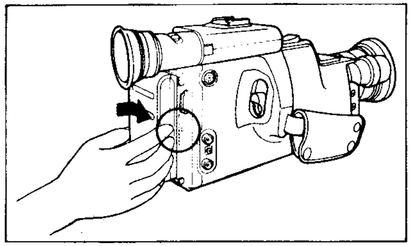
Place		Power source	Accessory to be used
	Indoors	House current	AC power adaptor AC-V33 or AC-V55 (page 7)
	Outdoors	Battery pack	Battery pack NP-55 or NP-77 (page 7)
	In the car	12 V or 24 V car battery	AC power adaptor AC-V55 and car battery cord DCC-16AE (page 7)

Notes on power source
- Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted cassette tape. If this is done by accident, supply the power again immediately and turn on the power switch.
- If a power source is disconnected or the CHARGE button on the AC power adaptor is pressed in rewind mode, the ⏏ indication may blink in the display window and the tape may not run. In this case, remove the cassette and insert it again.
- Be careful not to let any metal object touched on the metal part on the battery pack or AC power adaptor. When the battery pack is not be used, keep it in its case.

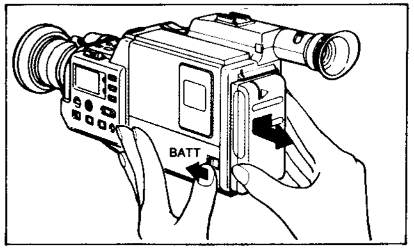
B-1



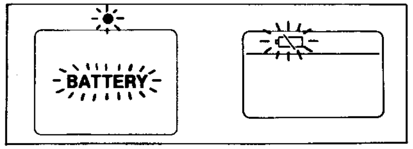
B-2



B-3



B-4



BATTERY PACK—NP-55 OR NP-77

How to charge B-1
Use the AC-V33 AC power adaptor.
The charging time is about 1 hour for an NP-55 battery pack, or about 2 hours for an NP-77 battery pack.

1 Connect the AC-V33 to a wall outlet.
2 Attach the battery pack to the AC-V33.
  Align the grooves on the battery pack with those on the AC-V33, and while pressing the battery pack, slide it as illustrated.
3 Press the POWER button.
4 Press the CHARGE button.

To attach the battery pack to the video camera recorder B-2
Align the right side of battery pack with the white line on the recorder, and while pressing the battery pack, slide it to the right.
Make sure that the battery is fitted completely to the mounting surface. Imperfect fit may damage the projections on the recorder.

To remove the battery pack B-3
While pressing the BATT switch in the arrow direction, slide and pull out the battery pack as illustrated.

Battery life
A fully-charged NP-55 battery pack provides approximately 40 minutes of continuous camera recording, and an NP-77 provides approximately 80 minutes of continuous camera recording.

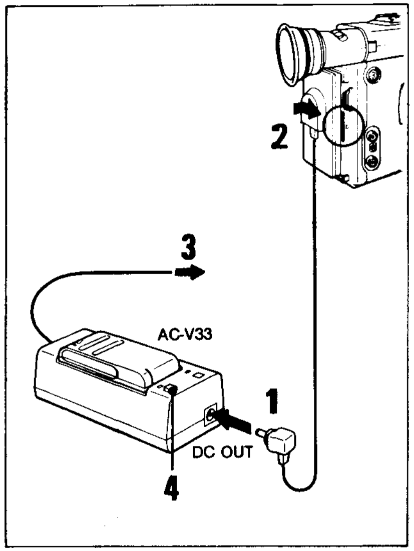
NOTES
- The video camera recorder consumes power even in the recording pause mode. Therefore, for every hour's worth of tape you shoot, plan to use 2 to 3 hours' worth of battery power.
- If the battery pack is not fully charged or if it is used in a cold place, its operating time is also shortened.

WHEN THE BATTERY BECOMES WEAK B-4
The BATTERY indication and red lamp blink in the viewfinder and the ▭ indication blinks in the display window.
Replace the battery pack with the fully charged one.

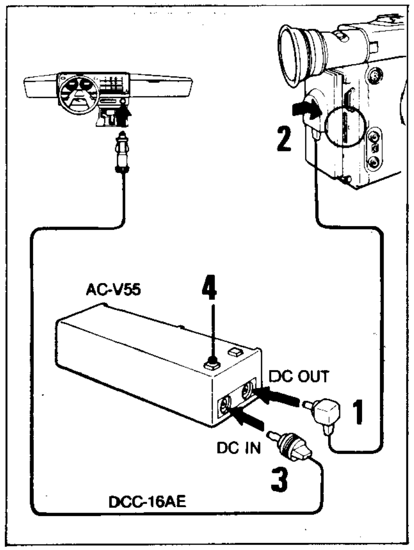
USING THE NP-22 BATTERY PACK
A fully-charged NP-22 battery pack can operate this unit for approximately 60 minutes. For using the NP-22, an optional NPA-22 battery adaptor is necessary.

OPTIONAL ACCESSORIES FOR CHARGING
- **AC-V55 AC power adaptor**
  Two battery packs can be charged simultaneously.
- **BCA-70 or BCA-80 battery charge adaptor, ACP-88 AC pack and NPA-55 battery adaptor**
  For charging, insert an NP-55 into the NPA-55.

B-5



B-6



HOUSE CURRENT—USING AC-V33 AC POWER ADAPTOR B-5

1 Insert the connecting cord supplied with the AC-V33 AC power adaptor into the DC OUT jack on the AC power adaptor.
2 Attach the connecting plate to the battery mounting surface on the video camera recorder.
3 Connect the AC power adaptor to a wall outlet.
4 Press the POWER switch on the adaptor.

After using, press the POWER switch on the adaptor again.

To remove the connecting plate from the video camera recorder
While pressing the BATT switch on the recorder, slide and pull out the connecting plate.

- The optional AC-V55 AC power adaptor can also be used to operate this recorder on house current.

CAR BATTERY B-6

Use the DCC-16AE car battery cord and the AC-V55 AC power adaptor.

1 Insert the connecting cord supplied with the AC-V55 into the DC OUT jack on the AC-V55.
2 Attach the connecting plate to the video camera recorder.
3 Connect the DCC-16AE car battery cord to the DC IN jack on the AC-V55 and to the cigarette lighter socket of a car (12 V or 24 V).
4 Press the POWER switch on the AC-V55.

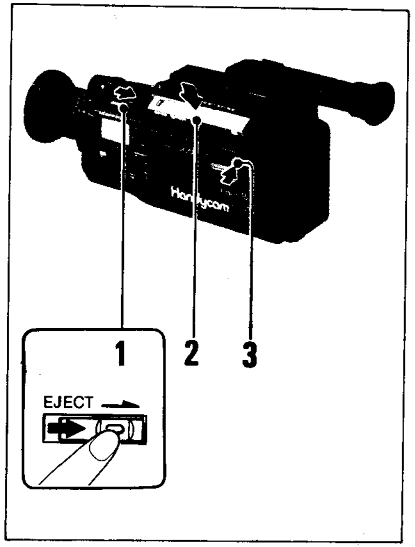
After using, press the POWER switch on the adaptor again.

To remove the connecting plate from the video camera recorder
While pressing the BATT switch on the recorder, slide and pull out the connecting plate.

- The optional DCP-55 DC pack can also be used to operate this recorder on a 12V or 24V car battery.

1-3. CASSETTE CASE

C-1



CASSETTE INSERTION C-1

Make sure that a power source is connected to the unit.

1 Press and slide the EJECT switch.
The cassette holder will open.
2 Insert a cassette with the window outward and the arrow mark down.
3 Push the PUSH mark to close the cassette holder.

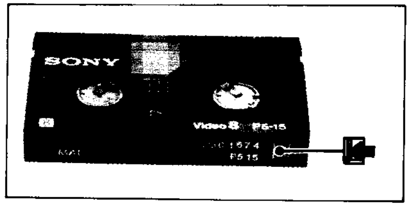
CASSETTE EJECTION

1 Connect a power source.
2 Press and slide the EJECT switch.
3 Take the cassette out and push the PUSH mark to close the cassette holder.

NOTES

- While the upper lid of the cassette compartment is rising, never pull or push it forcibly.
- When the cassette holder is pressed to close, the upper lid of the cassette compartment will automatically lower. Be careful not to trap your hand between the cassette holder and the lid. To open the cassette holder, press and slide the EJECT button.
- Never insert anything in the small holes on the rear of the cassette. These holes are used to sense the kind of tape, thickness of tape, if the tab is out or in, etc.
- To record from the beginning of the tape, run the video camera recorder for about 15 seconds at the beginning of a cassette before recording. It will avoid missing the starting point during playback on a video cassette recorder.

C-2



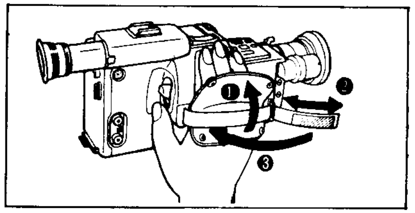
THE TAB ON THE CASSETTE C-2

(The photo is of Sony type.)

When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased. To avoid erasing a recording unintentionally, slide the tab out to cover the opening.
When the tab is out, a recording cannot be made. To re-record on a cassette, slide the tab in.

1-4. PREPARATIONS FOR CAMERA RECORDING

D-1



GRIP STRAP ADJUSTMENT D-1

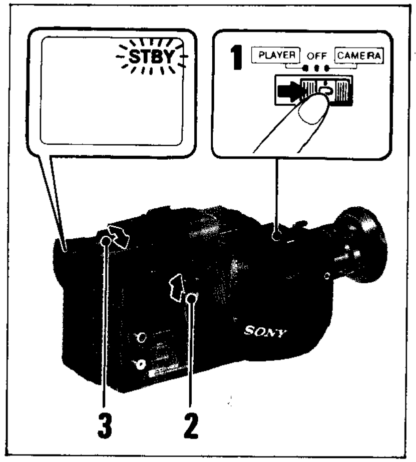
Adjust the length of the grip strap so that your fingers can manipulate the STANDBY switch, START/STOP button and power zoom button.

VIEWFINDER ADJUSTMENT

Viewfinder lens adjustment D-2

This adjustment is necessary only when you use the camera for the first time or after another person has used it, because the distance of optimum vision varies from person to person.

D-2



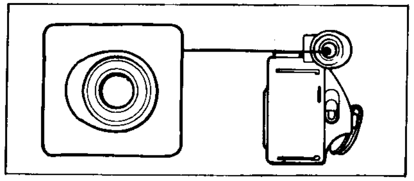
Make sure that the lens cap is removed.

1 Press and slide the POWER switch to CAMERA.
2 Slide the STANDBY switch up.
The unit will be set to recording pause mode and the STBY indication will appear on the viewfinder screen.
3 Adjust the viewfinder lens adjustment lever so that the indication on the viewfinder screen come into sharp focus.

NOTE

When the power is turned on, irregular indications may appear on the viewfinder screen. In this case, set the POWER switch to OFF, and set it to CAMERA again.

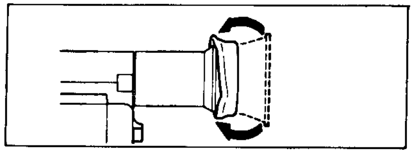
D-3



To view with your left eye D-3

Pull to detach the rubber eyecup and reattach it as illustrated.

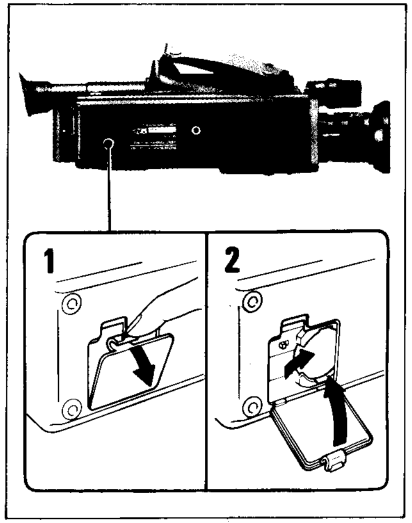
D-4



To view through the glasses D-4

Fold the rubber eyecup outward.

D-5



LITHIUM BATTERY D-5

Before operating the unit for the first time, install the supplied lithium battery to activate the clock.

1. Open the cover of the lithium battery compartment on the bottom.
2. Install the supplied CR2025 lithium battery with the ⊕ side facing out.
3. Close the cover.

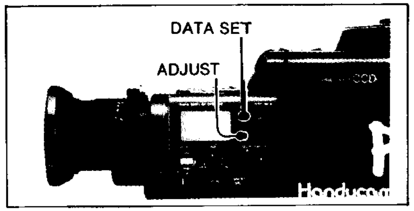
To remove the lithium battery
Press the side of the battery in the direction as indicated for installation.

LITHIUM BATTERY LIFE
Approximately 2 years in normal operation.
When the lithium battery becomes weak, the ⌧ indication and the DATE or TIME indication will blink in the display window while the date or time is displayed.
In this case, replace the battery with a Sony CR2025 lithium battery or equivalent. Use of another battery may present a risk of fire or explosion.

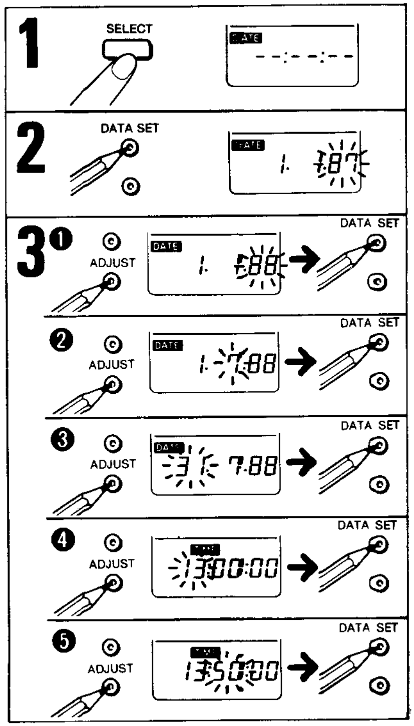
NOTES ON LITHIUM BATTERY
- Keep the lithium battery out of the reach of children. Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to assure a good contact.
- Be sure to observe the correct polarity when installing the battery.
- Do not hold the battery with metallic tweezers, otherwise a short-circuit may occur.
- Do not break up the battery nor throw it into a fire, which might cause it **to explode. Carefully dispose of the used** batteries.

WARNING
Battery may explode if mistreated. Do not recharge, disassemble or dispose of in fire.

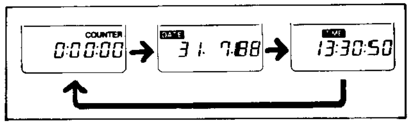
D-6



D-7



D-8



DATE/TIME SETTING D-6

Make **sure** that the lithium battery **is installed.**

1. Press the SELECT button.
   The DATE indication will appear **on the** viewfinder screen.
2. Press the DATA SET button for 2 or 3 seconds to display the preset date (1.1.87).
3. Adjust the year, month, day, hour and minute in sequence, following the illustration D-7.
   First adjust the blinking digits with the ADJUST button, and then press the DATA SET button.
   ❶ Year: 87 = 1987, 00 = 2000 ❷ Month
   ❸ Day ❹ Hour ❺ Minute
   After adjusting the minute digits, press the DATA SET button at the same time with an announced time signal.
   The clock starts operating.
4. To reset to the counter mode, press the SELECT button.

   There is no need to readjust the date and time as long as the lithium battery remains.

THE ADJUST BUTTON CAN BE PRESSED IN TWO WAYS:
- When you keep the button pressed, the digits will advance continuously.
- When you press and immediately release the button, the digits will advance by one.

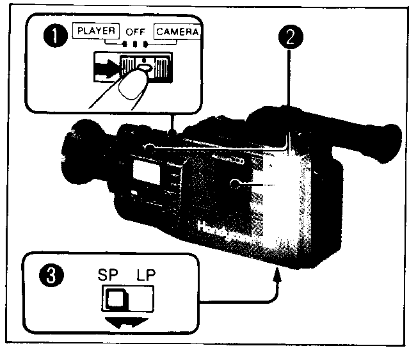
To change the adjusted digits during setting
1. Press the DATA SET button repeatedly until the clock starts operating.
2. Press the DATA SET button for 2 or 3 seconds so that the year digits blink.
3. Press the DATA SET button repeatedly until the digits to be changed blink.
4. Change the digits with the ADJUST button and then press the DATA SET button.

To readjust the date or time after the setting has been completed
1. Press the SELECT button to display the date or time.
2. Press the DATA SET button for 2 or 3 seconds so that the year digits blink.
3. Press the DATA SET button **repeatedly until** the digits to be changed blink.
4. Change the digits with the ADJUST **button** and press the DATA SET button **repeatedly** until the clock starts operating.

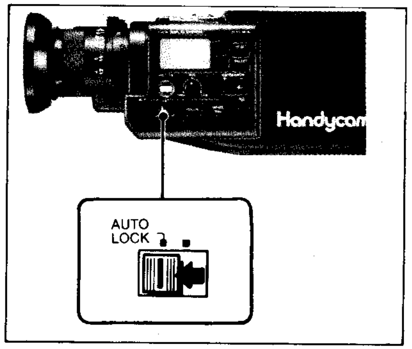
To check the date and time D-8
Each time the SELECT button is pressed, **the** display changes as follows:
Counter → Date → Time → Counter...

1-5. EASY CAMERA RECORDING WITH AUTOMATIC ADJUSTMENT

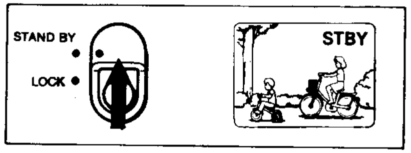
E-1



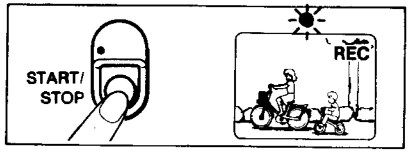
E-2



E-3



E-4



CAMERA RECORDING

1 **Press and slide the POWER switch to CAMERA and insert a cassette.** E-1

2 **Set the recording mode/EDIT switch to LP or SP, according to the length of the programme to be recorded.** E-1
The recording time of a cassette in the LP mode is twice as long as that in the SP mode.

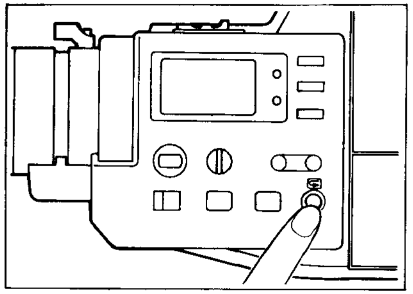
3 **Set the AUTO LOCK switch to the left (green AUTO LOCK position).** E-2
In this position, the focus, white balance and iris will be adjusted automatically.

4 **Slide the STANDBY switch up.** E-3
The unit will be set to recording pause mode.

5 **To start recording, press the START/STOP button.** E-4

6 **To stop recording, press the START/STOP button.**
The unit will be set to recording pause mode.

E-5



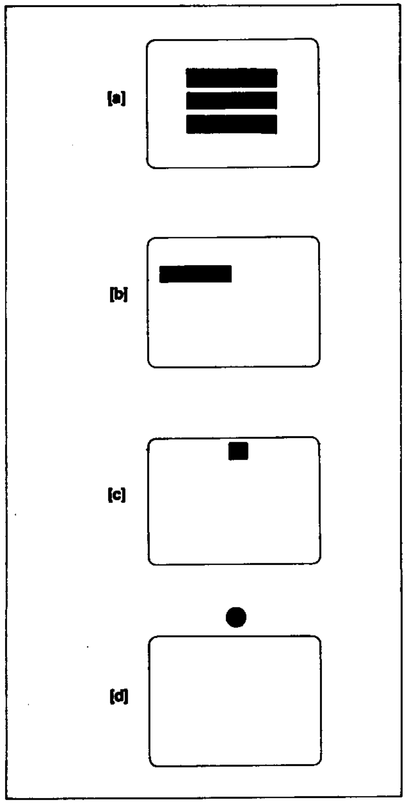
To check the last scene of the previous recording
Press the ⊜ button momentarily. E-5
The last few seconds of the recorded scene are played back in reverse, and then played back normally. Then the unit will enter recording pause mode.

After recording
Slide the STANDBY switch down and set the POWER switch to OFF.

NOTES ON RECORDING
- If you leave the unit in the recording pause mode for 7 minutes or more, the power will be automatically turned off.
  To resume recording pause mode, slide the STANDBY switch down and slide it up again.
- Avoid mechanical shock or shaking of the unit in recording pause mode. Otherwise, smooth recording will not be obtained when recording is resumed.
- When the POWER switch is moved during recording, the tape will stop.
- Should you shoot a subject in bright conditions such as sunlight just after shooting in a dark place, the picture may not appear on the viewfinder screen. In this case, move the camera away from the subject to resume the normal condition.
- A vertical band may appear when a subject such as a candle flame or a light is shot against a dark background.
- When playing back a tape recorded with this unit on a VTR equipped with PCM function, set the audio monitor selector on the VTR to the standard position.
- When a new recording is made with this unit using a tape on which PCM stereo sound has previously been recorded, set the monitor switch of the video cassette recorder for playback to the STD (standard) position. Otherwise, the sound may not be heard or may be distorted.

NOTES ON AUTOMATIC ADJUSTMENT
- During camera recording, do not touch the focus ring or cover the white balance sensor.
- If there is insufficient light, the auto focusing and auto white balance do not operate properly. Add an appropriate light.
- The camera recording with automatic adjustment may not produce optimum results under certain conditions or ambient lighting. In this case, manually adjust the focus, white balance and iris. See page 12, 13, and 14.
- The shutter speed is fixed at normal in AUTO LOCK position.

E-6

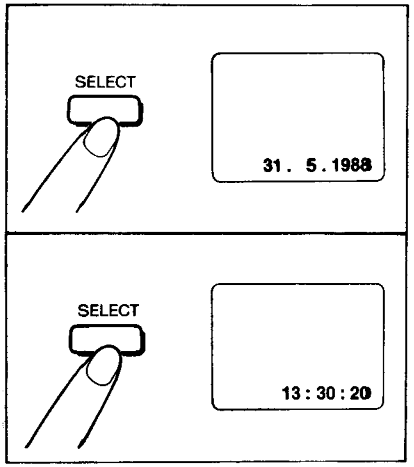


CAUTION INDICATORS ON THE VIEWFINDER SCREEN E-6

A caution indicator will be displayed on the viewfinder screen.

[a]	BATTERY	Blinks, then goes out.	The battery is weak.
	TAPE END	Blinks.	The tape reaches its end.
	CASSETTE	Blinks.	• No cassette inserted. • The safety tab is out.(page 8)
	DEW	Blinks.	Moisture condensation inside the unit. (page 22)
	CAUTION	Blinks.	Moisture condensation on the tape surface, etc. (page 22)
[b]	INDOOR	Lights.	The WHITE BAL button is set for indoor recording. (page 13)
	OUTDOOR	Lights.	The WHITE BAL button is set for outdoor recording. (page 13)
[c]	White mark	Lights.	Manual focusing mode is set. (page 12)
		Blinks.	Auto focusing does not work correctly. (page 12)
[d]	Red lamp	Lights.	During recording.
		Blinks.	Battery is weak.

E-7



TO RECORD THE DATE OR TIME E-7

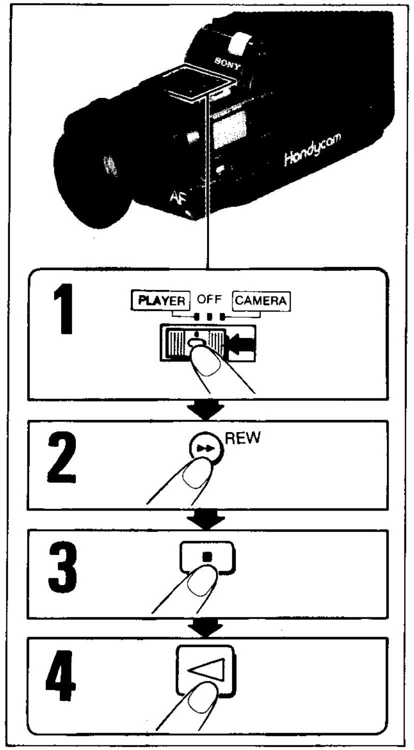
During camera recording or in recording pause mode, press the SELECT button once or twice to display the date or time on the viewfinder screen.
If the unit is set to recording mode, the date or time being displayed will be recorded together with the picture.

To stop recording the date or time, press the SELECT button twice or once to extinguish the display. The picture recording will continue.

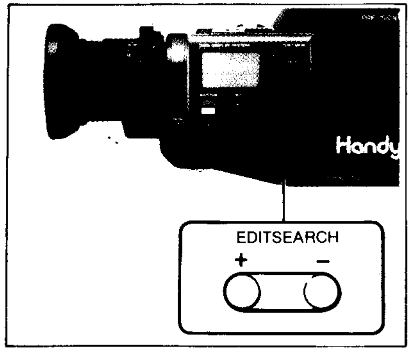
NOTES

- The date or time can be recorded only during a camera recording. To insert the date or time while editing a tape, see "INSERT RECORDING" on page 20.
- To display the time or to extinguish the date during recording, press the SELECT button twice **in succession** to pass over the unnecessary date or time display rapidly. Otherwise, the unnecessary display will be recorded. When the SELECT button is pressed in succession, such a display will appear momentarily but will not be recorded.

E-8



E-9



MONITORING THE PLAYBACK PICTURE ON THE VIEWFINDER SCREEN E-8

1 Set the POWER switch to PLAYER.
2 Press the ▶▶ button to rewind the tape.
3 Press the ■ button to stop the tape.
4 Press the ◁ button to start playback.
The playback picture will appear on the viewfinder screen.

To stop the playback, press the ■ button.

To monitor the playback sound, connect an earphone to the 🎧 jack.

NOTE
The playback picture and sound may be affected in a moving vehicle.

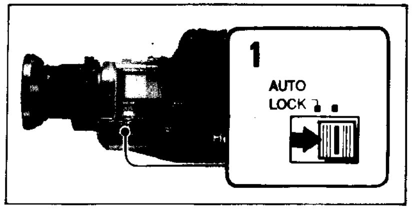
SMOOTH RECORDING

Smooth recording can be made even if the recording is stopped and started again, or even if the power is turned off and on again, provided that the cassette is not removed. But, if the cassette has been removed, proceed as follows.

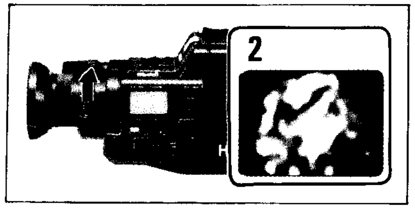
1 Select the same recording mode with the recording mode/EDIT switch in the lithium battery compartment as was used for the already recorded portion.
2 Set the POWER switch to CAMERA.
3 Insert a cassette.
4 Slide the STANDBY switch up.
5 Locate the point from which the recording is to begin again by monitoring the picture on the viewfinder screen. E-9
❶ Press the "+" side of the EDITSEARCH button to advance the picture at a normal playback speed, or the "–" side to reverse the picture.
❷ At the desired point, release the EDITSEARCH button.
The unit will be set to recording pause mode after 2 seconds.
6 Press the START/STOP button to start recording.

NOTES
- Smooth recording cannot be obtained if two recordings are carried out on different recorders, on this unit and another recorder.
- If the picture is monitored on a TV or video monitor, it may be distorted or appear in monochrome while the EDITSEARCH "–" button is pressed.

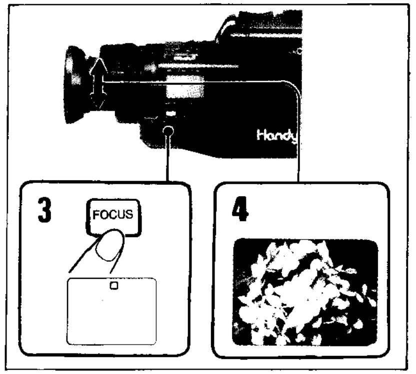
F-1



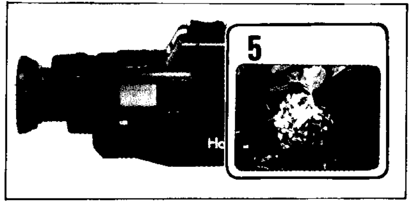
F-2



F-3



F-4



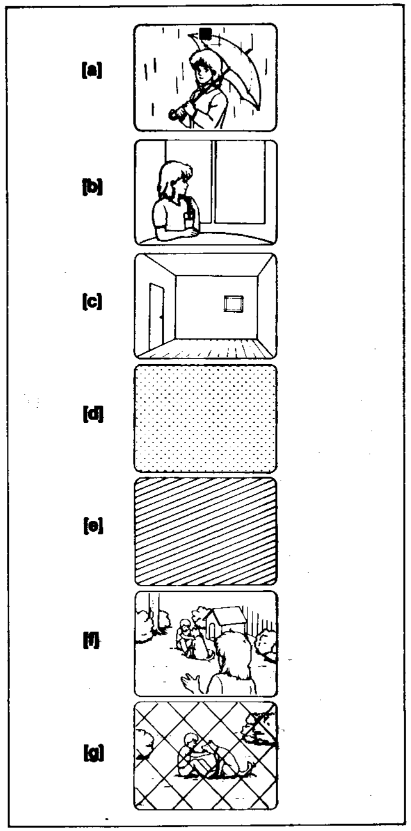
1-6. MANUAL FOCUSING

Auto focusing will be activated for almost any subject centered in the viewfinder. However, for some subjects listed on page 13, or when the white mark blinks on the center top of the viewfinder screen, use manual focusing.

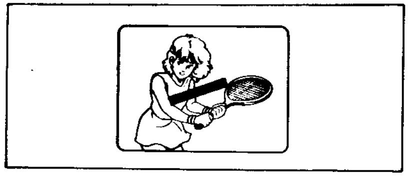
1 Set the AUTO LOCK switch to the right position (white mark). F-1
2 Turn the manual zoom lever to the telephoto position (72) to make the subject as large as possible in the viewfinder. F-2
3 Press the FOCUS button so that the white mark appears on the center top of the viewfinder screen. F-3
4 Turn the focus ring to achieve sharp focus. F-3
5 Set the desired shot length using the manual zoom lever. F-4

SOME HELPFUL HINTS
- When shooting a scene with lots of movement in bright light, the subject can be kept in good focus regardless of movement by setting the zoom lever to 12 and the focus ring to 2 m.
- The figures on the focus ring indicate the distance between the subject and the ⦶ mark on the side of the recorder body.
- When shooting in low light situations, such as indoors, the depth of field for proper focus becomes very shallow. For best results, set the focus in telephoto, and shoot at wide angles.

F-5



F-6



DIFFCULT CONDITIONS FOR AUTO FOCUSING F-5

[a] Insufficient light
[b] Too much bright light behind **the subject**
[c] Subjects with flat colours and **less** contrast—wall, sky, etc.
[d] Finely detailed repetitive **patterns**
[e] Slant stripes
[f] When the distance between subjects at the center is extreme (e.g. one subject is close, the other is away)
[g] Subjects beyond screens, nets, etc. or when another subject passes across the camera

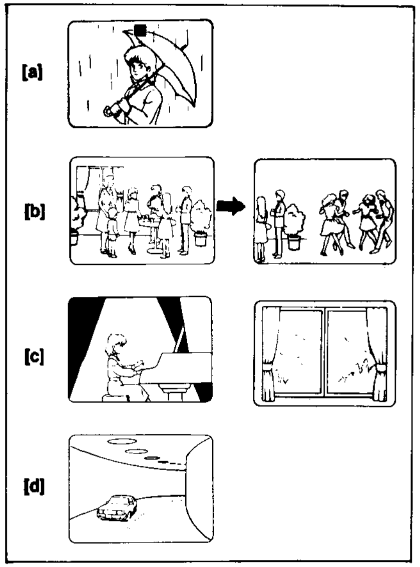
OTHER USES OF MANUAL FOCUSIHG

- When using special effects lenses or filters
- When shooting still subjects on a tripod
- To save battery wear
  (When the AUTO LOCK switch is set to the green mark position, the auto focusing operates to move the focus ring automatically even in recording pause mode. This causes the battery to wear continuously.)
- For close-up shooting(See page 15.)
- When shooting in a hot palce.

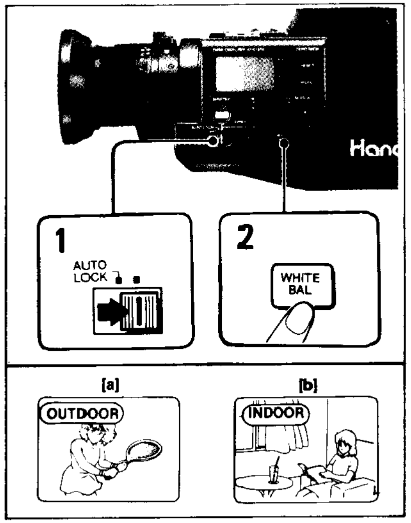
TCL AUTO FOCUSING SYSTEM
The TCL (Through Camera Lens) auto focusing system incorporated in this unit utilizes high-precision sensors to determine picture contrast at the center of the viewfinder screen (the portion marked with the blue bar in the illustration) and adjust focus accordingly for automatic, highly accurate focusing. F-6

NOTE
It may take several seconds to get focus when the camera **is** rapidly panned from a near subject to a distant subject **with less contrast.**

G-1



G-2



1-7. MANUAL WHITE BALANCE

In most cases, the auto white balance function of this unit adjusts the white balance automatically. However, if it does not work correctly in the conditions listed below, adjust the white balance manually.

DIFFICULT CONDITIONS FOR AUTO WHITE BALANCE G-1

[a] Insufficient light
[b] When lighting conditions change quickly
[c] When the light source for the subject is different from that illuminating this unit e.g. when the subject is in a spotlight, or when the subject is outdoors but the camera is indoors, etc.
[d] Special light sources such as natrium lamps, the setting sun, etc.

TO ADJUST THE WHITE BALANCE MANUALLY G-2

1 Set the AUTO LOCK switch to the right position (white mark).
2 Press the WHITE BAL button once or twice so that the appropriate white balance indicator appears on the viewfinder screen.
  [a] To record subjects outdoors: **OUTDOOR** (5,800 K)
  [b] To record subjects indoors: **INDOOR** (3,200 K)

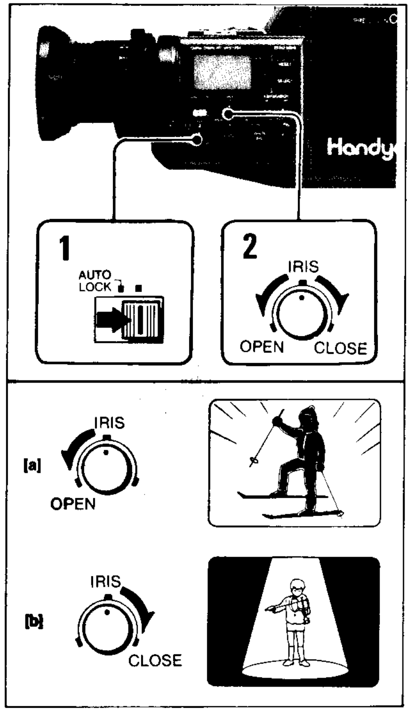
Recommended setting for various subjects

OUTDOOR:	sunset, fireworks, subjects in a sunny window, etc.
INDOOR:	candle flames in darkness, subjects in the spotlight, scenes before sunrise, subjects in a tunnel (illuminated by natrium lamps), neons, etc.

WHAT IS THE WHITE BALANCE?
The colour of the subject being recorded can be affected by the ambient light. White balance adjustment is necessary for compensating for this colour variation, so that a white subject, for example, can be recorded white without reference to the light source.

AUTO WHITE BALANCE SYSTEM
The auto white balance system of this unit utilizes the white balance sensor to determine the colour temperature of the ambient light and adjust the white balance accordingly. As the ambient lighting condition changes gradually, such as in twilight, the white balance will be readjusted automatically. As the sensor is built in the unit, however, optimum white balance adjustment cannot be obtained if the subject and this unit are under different lighting conditions.

H



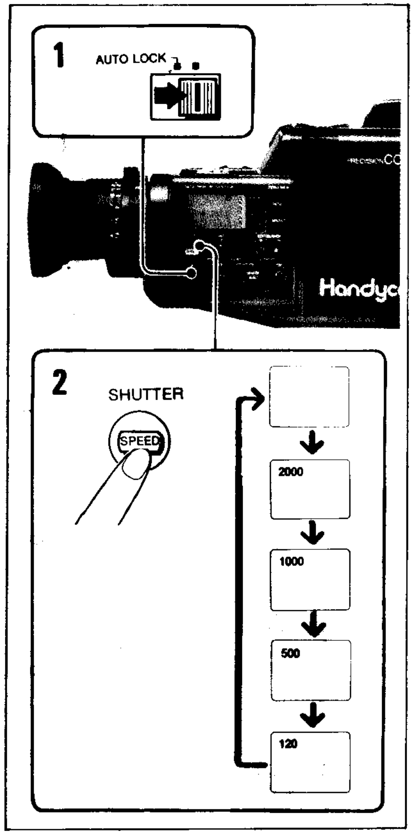
1-8. MANUAL IRIS ADJUSTMENT H

The iris is adjusted automatically when the AUTO LOCK switch is set to AUTO LOCK. When shooting a scene with strong contrast, adjust the iris manually.

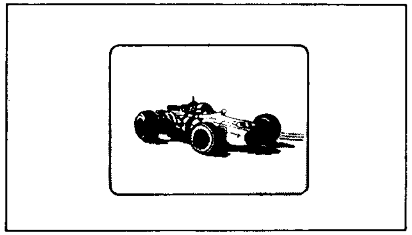
1 Set the AUTO LOCK switch to the right position (white mark).
2 Adjust the IRIS control.
  [a] When backlit shot results in the subject being too dark: **Turn IRIS toward OPEN.**
  [b] When a subject is too bright against a dark background: **Turn IRIS toward CLOSE.**

After shooting that particular scene, set the **IRIS** control to the center position (green mark).

I-1



I-2



1-9. SHUTTER SPEED ADJUSTMENT

When the shutter speed is fast, subjects moving at high speed, such as a moving golf ball or tennis ball, can be recorded clearly.
Five shutter speeds can be selected on this unit: 1/50 (normal speed), 1/2000, 1/1000, 1/500, 1/120.
Select the appropriate shutter speed according to the subject and the ambient lighting conditions.

TO SELECT THE SHUTTER SPEED I-1

1 Set the AUTO LOCK switch to the right position (white mark).
2 Press the SHUTTER SPEED button repeatedly until the desired shutter speed indication appears on the viewfinder screen.
  Each time the SHUTTER SPEED button is pressed, the indication changes:
  No indication → 2000 → 1000 → 500 → 120
  (1/50) (1/2000) (1/1000) (1/500) (1/120)

Recommended shutter speed settings
The faster the shutter speed is, the better faster movements of the subjects can be followed but the recorded picture becomes darker. Select the appropriate shutter speed while observing the brightness of the picture on the viewfinder screen.

Location	Recommended shutter speed
• Sunny golf courses and tennis courts • Snow-covered mountains • Beach in summer	1/2000
• Slightly overcast outdoors • Roofed golf practice ground	1/1000
• Cloudy outdoors • Indoor tennis courts	1/500 or 1/120

A noiseless still, frame-by-frame and slow pictures are obtained when the picture recorded with the faster shutter speed is played back. This is convenient for checking your golf or tennis form, etc.

NOTES
- When the shutter speed is changed during a camera recording of a TV screen, the brightness of the recorded picture may vary in a single image. I-2
- When a very bright object is shot with a faster shutter speed, a light, vertical, belt-like line ("smear") may appear on the screen. This is not a failure of the unit.

1-10. ZOOMING

Either power zoom or manual zoom can be used to change the size of the subject in the scene.

POWER ZOOM J-1

— for smooth and constant zooming

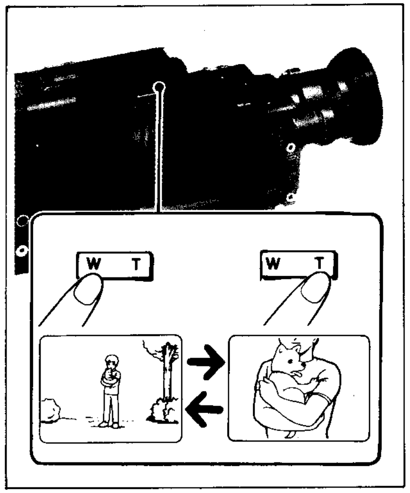
Press the "T" side of the power zoom button for telephoto (T) and the "W" side for wide-angle (W). The zoom ring will move automatically.

MANUAL ZOOM J-2

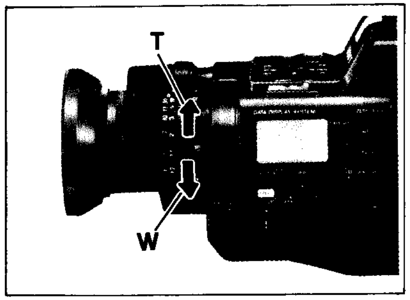
— to create a dramatic effect

Turn the manual zoom lever upward for telephoto (T) and downward for wide-angle (W).

J-1



J-2



1-11. CLOSE-UPS(Macro) K

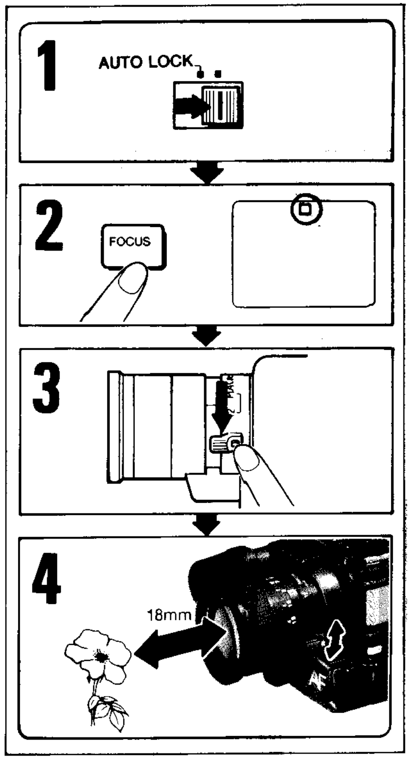
Use of the macro function allows the camera to approach the subject almost to the lens, so that even tiny objects can literally fill the screen for dramatic close-up effects.
Remove the lens hood before operation.

1. Set the AUTO LOCK switch to the right position (white mark).
2. Press the FOCUS button so that the white mark appears on the center top of the viewfinder screen.
3. While keeping the green macro set button pressed, turn the manual zoom lever to the MACRO position.
4. Focus by turning the manual zoom lever within the MACRO range.
   The recorder can move to a subject as close as 18 mm (23/32 in.) from the lens surface.

NOTES ON MACRO SHOOTING

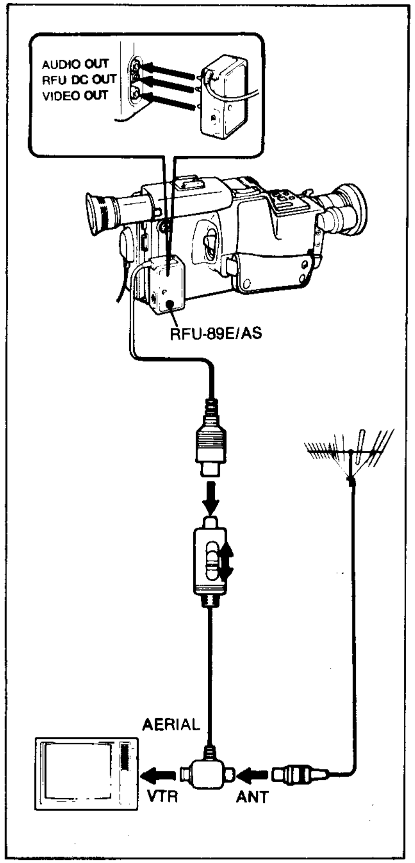
- When shooting in macro, the depth of field is very shallow, so pay attention to focus. To keep the subject in focus, use a tripod or monopod.
- Zooming is not possible during macro shooting. To change the size of the subject, move the video camera recorder closer or further away from it.
- Auto focusing does not function during macro shooting.
- When removing and attaching the lens hood, hold the focus ring.

K

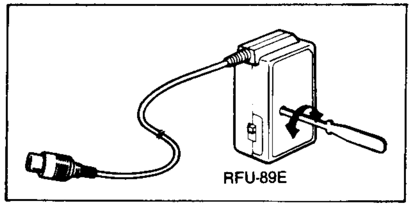


1-12. PLAYBACK OF THE RECORDED TAPE

L-1



L-2



CONNECTING A TV

Connecting a TV without audio/video input connectors L-1

1 Connect the RFU-89E/AS RFU adaptor to the CCD-V90E.
2 Connect the aerial, CCD-V90E and TV to the aerial selector (supplied with the RFU-89E/AS). Use a 75-ohm coaxial cable for aerial connection.
3 RFU-89E only: Set the I/G selector according to the TV system of your country.
4 Adjust one of the TV programme positions to receive the signal from the video camera recorder. See "Adjusting the TV" below.
5 Set the selector switch on the aerial selector as follows:

For viewing a playback picture → VTR
For viewing TV programmes → ANT

6 Select the same channel on the TV as that selected in adjusting the TV.

Adjusting the TV with the RFU-89E

1 Turn on the TV and select a programme position which is not being used to receive a TV station.
2 Set the POWER switch of the CCD-V90E to CAMERA and slide the STANDBY switch up.
3 Set the selector switch of the aerial selector to VTR.
4 Tune the TV until you see the picture and hear the sound from the CCD-V90E.

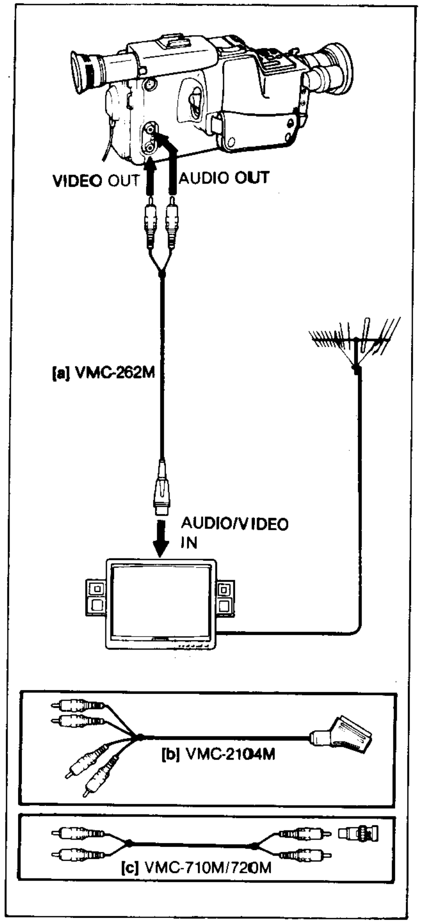
If the playback picture is not free of disturbance

1 Set the selector switch of the aerial selector to ANT.
2 Adjust the programme position of the TV to a channel between UHF channels 30 and 39 with the tuning control or the fine tuning control on the TV, so that the TV screen shows no picture and so that a steady rustling sound or no sound is heard.
3 Set the selector switch of the aerial selector to VTR.
4 Slowly turn the RF channel of the RFU-89E with the supplied screwdriver, until the picture from the CCD-V90E becomes clear. L-2
Now the TV adjustment is complete.

Adjusting the TV with the RFU-89AS

Select the CHANNEL selector on the RFU-89AS to 0 CH or 1 CH, whichever is not active in your area, and select the same channel on the TV.

L-3



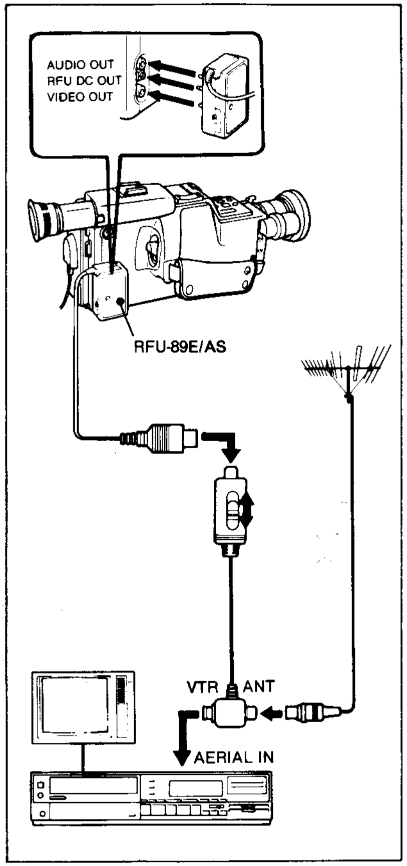
Connecting a TV (or colour monitor) equipped with audio/video input connectors L-3

Leave the TV aerial cable connected to the TV.

1 Connect the CCD-V90E to the TV using an optional connecting cable to match the connectors on the TV.
   - **[a]** VMC-262M: to a 6-pin DIN connector
   - **[b]** VMC-2104M: to a 21-pin connector (EUROCONNECTOR)
   - **[c]** VMC-710M/720M: to phono and BNC-type connectors
2 Set the TV/VIDEO selector button on the TV as follows:

For viewing a playback picture → VIDEO
For viewing TV programmes → TV

L-4



Connecting a TV connected to another VTR without an input selector L-4

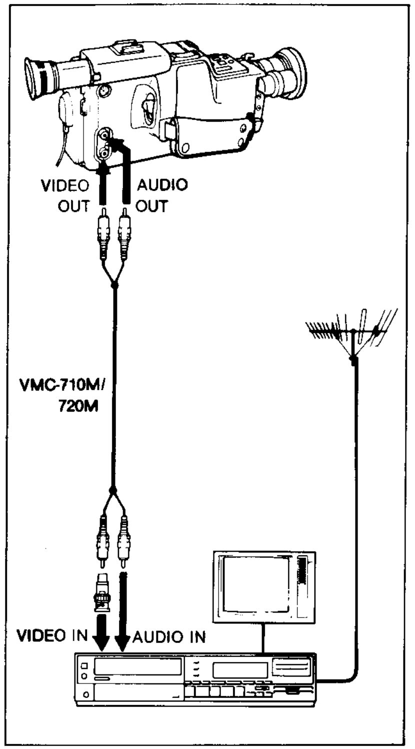
Connect the RFU-89E/AS RFU adaptor to the CCD-V90E.

1. Connect the RFU-89E/AS, TV, and the VTR to the aerial selector (supplied with the RFU-89E/AS).
   Use a 75-ohm coaxial cable for aerial connection.
2. RFU-89E only: Set the I/G selector according to the TV system of your country.
3. Adjust one of the TV programme positions to receive the signal from the video camera recorder. See "Adjusting the TV" on page 16.
4. Set the selector switch on the aerial selector as follows:

For viewing a playback picture → VTR
For viewing TV programmes and playback picture of the VTR → ANT

5. Select the same channel on the TV as that selected in adjusting the TV.

L-5



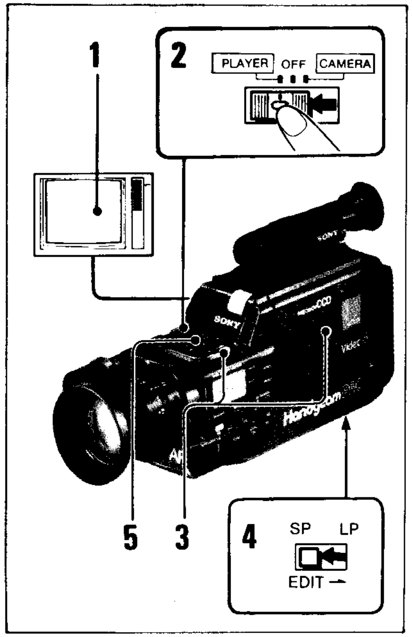
Connecting a TV connected to another VTR with an input selector L-5

Use the optional VMC-710M/720M connecting cord.

Set the selectors on the VTR as follows:
Input selector → LINE
TV/VTR selector → VTR

NOTE
When the VTR to be connected has stereo audio inputs, use the optional VMC-910MS/920MS connecting cord.

M-1



TO PLAY BACK M-1

1 Turn on the TV or colour monitor, and select the channel for the video camera recorder or set the TV/VIDEO select button to VIDEO.
2 Set the POWER switch to PLAYER.
3 Insert a cassette.
4 Set the recording mode/EDIT switch in the lithium battery compartment in the opposite direction to the arrow (EDIT OFF).
5 Press the ◁ button. Playback begins.
The unit detects the recorded mode of the tape, and adjusts the tape speed automatically.

To stop playback, press the ■ button.

When the tape comes to its end, the unit is automatically set to stop mode.

VARIOUS PLAYBACK MODES

To obtain a still picture
Press the ❚❚ button during playback. To resume normal playback, press the ◁ button or press the ❚❚ button again.

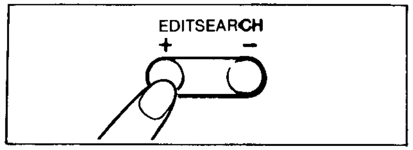
When the pause mode lasts for more than approximately 7 minutes, the pause mode will be automatically released and the unit will be set in the stop mode.

Frame-by-frame playback
Press the ◀❚❚ button in still picture mode.
If the ◀❚❚ button is kept depressed, a slow motion picture at 1/10 normal speed is obtained.
To resume normal playback, press the ◁ button.

To view the picture at high speed
Keep pressing the ◀◀ (fast-forward) or ▶▶ (rewind) button during playback. Release the button for normal playback.

NOTES
- Streaks will appear in high-speed playback mode. The sound will be muted in the still picture, frame-by-frame playback and high-speed playback modes.
- When a tape is recorded in SP mode, a still picture, frame-by-frame picture, slow motion picture and high-speed picture may be noisy with many streaks and become black and white.
  Streaks will be wider than those of an LP-recorded tape.
- If the position of the POWER switch is changed during playback, the tape will stop.
- If the POWER switch is slid to CAMERA, the unit will be set to recording pause mode.

M-2

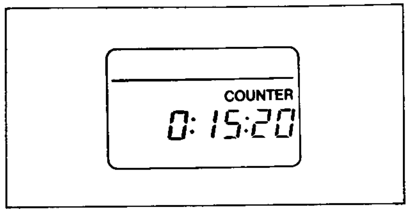


To adjust the frame-by-frame and slow playback pictures M-2
In slow playback mode, press the "+" or "–" side of the EDITSEARCH button until a clear picture is obtained.
Repeat adjusting until a still picture is displayed clearest.

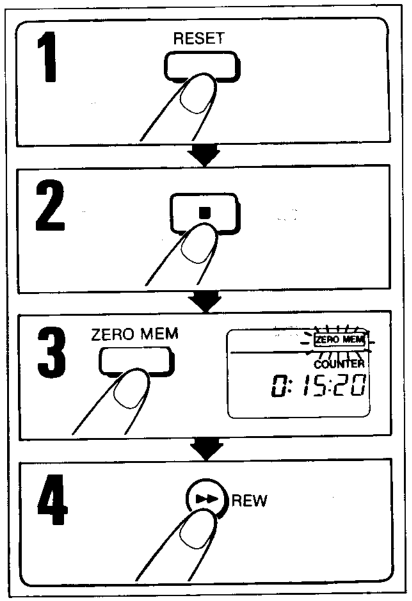
To adjust the still picture
If the still picture appears to shake, press the "+" or "–" side of the EDITSEARCH button until the picture stabilizes.

NOTE
The adjustment is retained in memory as long as the lithium battery is installed. Readjustment is only required when the tape speed, LP or SP, is changed, when the equipment used for playback is changed or when tapes recorded on other equipment are played back on this unit.
The noise may not be eliminated completely when a tape recorded on other equipment is played back in still or slow picture mode.

N-1



N-2



1-13. USE OF THE TAPE COUNTER

During recording or playback in SP mode, the digits on the counter indicate the actual recording or playback time. In LP mode, the counter counts approximately half the actual recording or playback time.

E.g. When the counter indicates "0:15:20" during playback of an LP-recorded tape, the tape was played back for approximately 30 minutes 40 seconds from the counter zero position. N-1

The counter reading is the same as above in rewind and fast-forward modes, and also in the display window on the optional RM-94 Remote Commander and RM-E100V editing controller.

TO INDEX THE WHOLE TAPE

Press the RESET button at the beginning of the tape so that the counter shows "0:00:00". By noting the counter reading at a particular point, you can easily find that point later by referring to the tape counter.

NOTES

- The counter reading and the point of the tape may not correspond exactly.
- The counter also operates for a blank, unrecorded portion of a tape.
- There will be a time lag of several seconds on the counter reading after repeated fast-forward and rewind operations or after playing back in slow mode for a long time.

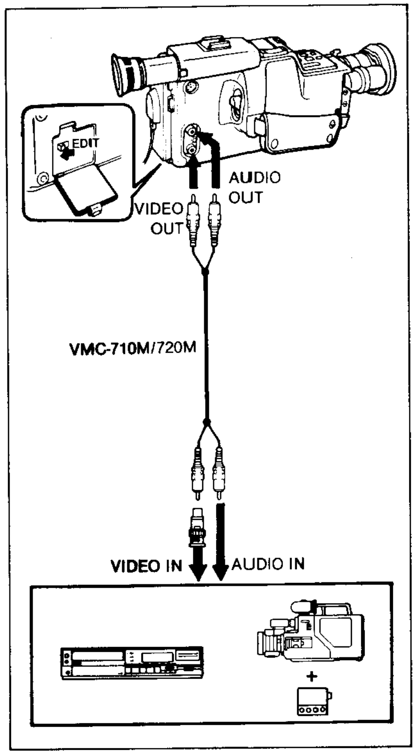
TO RETURN TO A PRE-REGISTERED POINT N-2

1 During recording or playback, press the RESET button at the point you later want to locate.
2 Press the ■ button when the recording or playback has finished.
3 Press the ZERO MEM button. The "ZERO MEM" indicator will blink in the display window.
4 Press the ▶▶ or ◀◀ button.
The tape will be rewound or sent forward and stop automatically when the counter reaches approximately zero.

NOTES

- The ZERO MEM button does not function during recording or playback mode.
- Be sure to press the ZERO MEM button when the tape is stopped.
- The ZERO MEM mode is cancelled automatically once the tape is rewound or sent forward to zero.

O



1-14. EDITING O

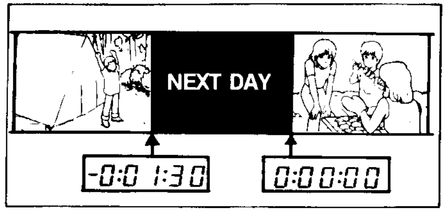
You can edit a tape from the CCD-V90E to another VTR.

1 Set the POWER switch on the CCD-V90E to PLAYER.
2 Slide the EDIT switch in the lithium battery compartment in the arrow direction ("EDIT" position).
3 Start playback on the CCD-V90E.
4 Start recording on the other VTR.

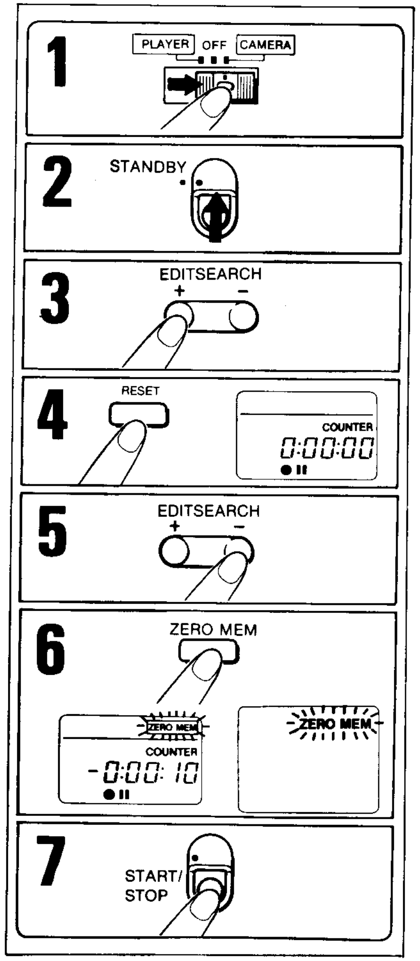
Function of the EDIT switch
Slide this switch in the arrow direction whenever you edit tapes. Signal loss that results from tape-to-tape transfer will be reduced, achieving more accurate signal transfer.
When recording in the SP mode or playing back normally, keep this switch in the opposite position.

The optional RM-E100V video editing controller allows easier editing between two units.

P-1



P-2



1-15. INSERT RECORDING

You can insert (record) video and audio simultaneously from the camera onto any recorded tape. P-1

OPERATION P-2

- Monitor the picture being inserted on the viewfinder screen.
- Select the same tape speed as was used for already recorded portion with the recording mode/EDIT switch in the lithium battery compartment.

1 Set the POWER switch to CAMERA.
2 Slide the STANDBY switch up to set the unit to recording pause mode.
3 Keep pressing the "+" or "–" side of the EDITSEARCH button and release the button at the point where the insert should end.
The unit will be set to recording pause mode.
4 Display the counter in the display window and press the RESET button.
The counter is reset to zero.
(For an accurate ending point, press the RESET button immediately after the EDIT SEARCH button is released and while the still picture is displayed.)
5 Keep pressing the "–" side of the EDITSEARCH button and release the button at the point where the insert should begin.
6 Press the ZERO MEM button.
The insert ending point is stored in memory.
7 Press the START/STOP button.
Insert recording will begin.

The insert recording will stop automatically near the counter zero point.

To cancel ZERO MEM mode, press the ZERO MEM button so that the ZERO MEM indicator disappears.

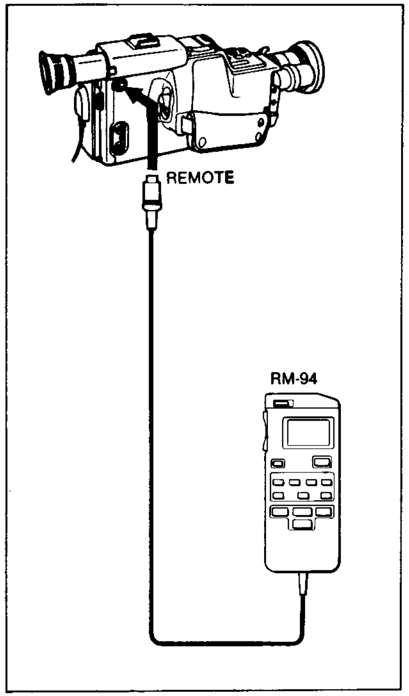
To insert the date or time
Follow steps 1 through 6 above, press the SELECT button to display the date or time indication on the viewfinder screen and then press the START/STOP button.

NOTES ON ZERO MEM MODE
ZERO MEM mode is cancelled automatically in the following cases.
- When an insert recording is completed.
- When the ■ or ◁ button is pressed or the tape is sent forward or rewound in fast-forward or rewind mode.
- When the position of the POWER switch is changed.
- When the power is turned off.
- When the cassette is ejected.

To restore it, press the ZERO MEM button again.

NOTES
- When recording pause mode lasts for approximately 7 minutes, pause mode will be automatically released and the unit will be set to stop mode.
- When the inserted tape is played back, the picture may be distorted at the end of the inserted programme.

Q



1-16. REMOTE CONTROL OPERATION Q

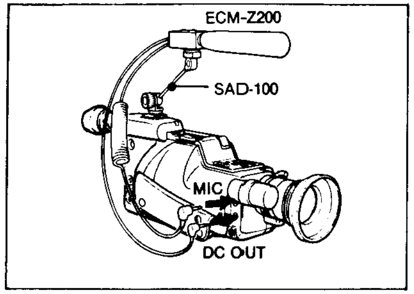
With an optional RM-94 Remote **Commander**, you can operate the CCD-V90E **video camera** recorder from a distance.

For details on operation, see **the instruction** manual provided with the **Remote Commander**.

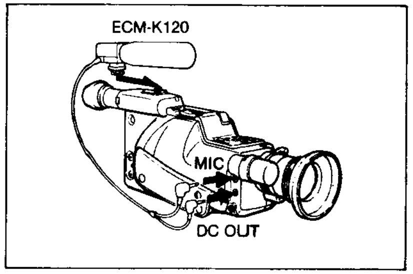
USING THE RM-84
The optional RM-84 Remote Commander can also be used with this unit.

- To turn the CCD-V90E on and off with the RM-84, first set the POWER switch on the CCD-V90E to CAMERA or PLAYER as required, and press the VTR POWER button on the RM-84.
  The CAMERA POWER button on the RM-84 does not function with the CCD-V90E.
- To start and stop camera recording with the RM-84, keep the STANDBY switch on the CCD-V90E in the upper STANDBY position.
- When the POWER switch is set to CAMERA on the CCD-V90E, both the CAMERA POWER and VTR POWER lamps light on the RM-84. This is not a problem.

R-1



R-2



1-17. USE OF AN EXTERNAL MICROPHONE

The built-in microphone picks up sounds equally from all directions (omni-directional, monaural type).
By using an optional microphone ECM-Z200, ECM-K120, etc., you can enjoy more efficient audio recording.

ECM-Z200 R-1
This microphone can zoom the sound as the lever is slid.
For attachment, the optional SAD-100 external microphone shoe is required.

ECM-K120 R-2
This microphone can pick up sound in three zones and switch from zone to zone as the selector is set.
Attach the microphone directly to the CCD-V90E.

NOTE
The built-in microphone will not operate when an optional microphone is connected to the MIC jack.

1-18. NOTES ON MOISTURE CONDENSATION

If the unit is brought directly from a cold to a warm location, moisture may condense inside the unit, on the surface of the tape or on the lens. In this condition, the tape may adhere to the head drum and be damaged or the unit may not operate correctly. To prevent possible damage under these circumstances, the unit is furnished with moisture sensors.

If moisture is present inside the recorder section S-1

When the power is turned on, the DEW indicator blinks in the viewfinder and the ▣ indicator blinks in the display window. No function button except the EJECT switch will work.

Eject the cassette if present, and turn off the unit and let it sit with the cassette compartment open (at least for one hour).

The unit can be used again if none of the DEW and ▣ indicators appears when the power is turned on again.

If moisture is present on the surface of the tape S-2

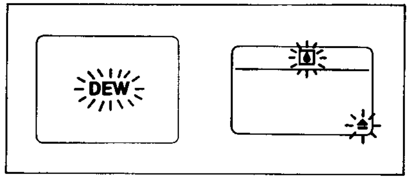
When the tape is inserted and a tape transport button is pressed, the ⏏ indicator blinks in the display window. No function button except the EJECT switch will work.

Eject the cassette and let the unit and the cassette sit at least for one hour.

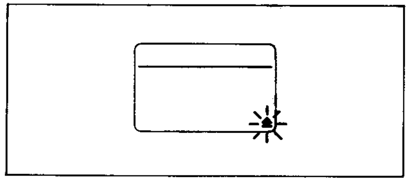
The cassette can be used again if the ⏏ indicator does not appear when the cassette is inserted and a tape transport button is pressed.

If moisture is present on the lens
There are no caution indicator, but the lens becomes dim. Turn off the power and leave the unit unused at least for one hour.

S-1



S-2



1-19. TROUBLESHOOTING

If you think you have a problem, double-check before calling the serviceman. You may have overlooked something relatively simple!

Symptom	Cause	Procedure
The power will not turn on.	The POWER switch on the AC power adaptor is set to OFF.	Depress the POWER switch.
The START/STOP button does not operate.	The tape is affixed to the drum.	Remove the cassette with the EJECT switch.
	The tape is at its end.	Rewind the tape or use a new one.
	The POWER switch is set to PLAYER or OFF.	Set it to CAMERA.
	The tab on the cassette is out (red).	Use a new cassette or slide the tab.
The tape does not move by pressing a tape transport button.	The POWER switch is set to CAMERA or OFF.	Set it to PLAYER.
	The tape is at its end.	Rewind the tape or use a new one.
Recording stops suddenly.	The ZERO MEM mode is set.	Press the ZERO MEM button.
The power turns off.	While being operated in the CAMERA mode, the recorder has been in the pause mode for more than 7 minutes.	Set the POWER switch to OFF and then to CAMERA.
	The battery is exhausted.	Use a charged battery.
A vertical band appears when a subject such as lights or a candle flame is shot against a dark background.	The contrast between the subject and background is too high; the camera is not malfunctioning.	—
The battery pack is quickly discharged.	The ambient temperature is too low.	—
	The battery pack has not been charged fully.	Charge the battery pack again.
The auto focusing function does not work.	The AUTO LOCK switch is set to the white mark position.	Set it to the green mark position.
	Shooting conditions are not suitable for auto focusing operation.	Focus manually. (See page 12)
The auto white balance function does not work.	The white balance sensor is covered.	Remove the obstacle.
	Shooting conditions are not suitable for the auto white balance operation.	Adjust the white balance manually. (See page 13.)
The cassette cannot be removed from the compartment.	The battery is exhausted.	Use the charged battery or the AC power adaptor.
The image on the viewfinder screen is not clear.	The viewfinder lens is not adjusted.	Adjust the viewfinder lens. (See page 8.)
The playback picture is not clear.	The recording mode/EDIT switch is set to the "EDIT" position.	Set it to the opposite position to the arrow direction.
	The programme position for the VTR is not adjusted correctly on the TV.	Adjust the TV. (See page 16)
	The video heads may be contaminated.	Clean the heads using a cleaning cassette.

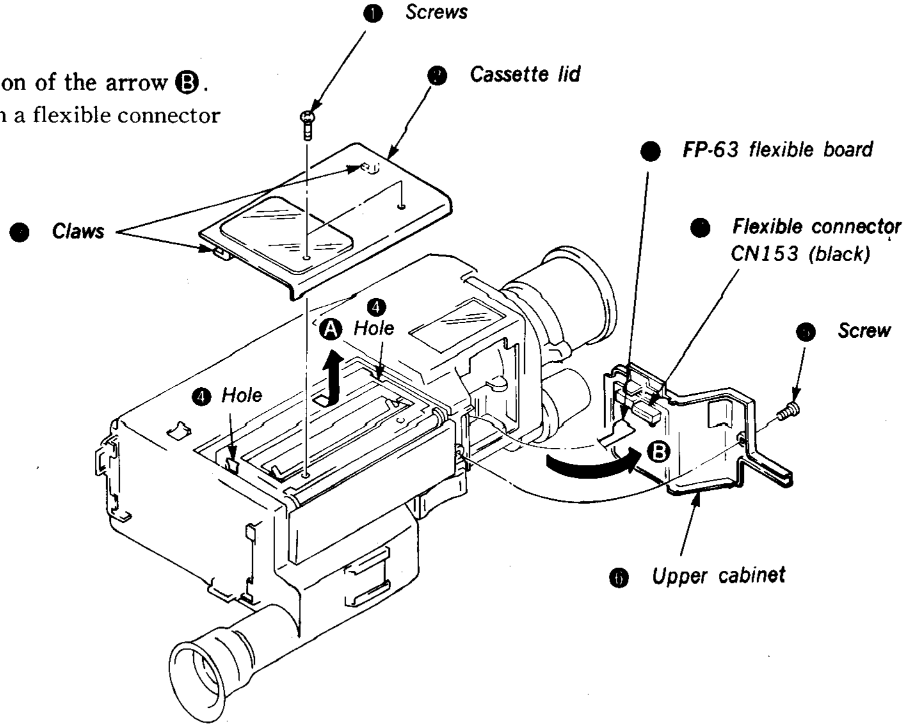
SECTION 2
DISASSEMBLY

2-1. REMOVAL OF CASSETTE LID, UPPER CABINET

1) Remove two screws ❶ .
2) Remove cassette lid ❷ by sliding it in the direction of arrow Ⓐ.

Note) When installing the casette lid, set two claws ❸ into the holes ❹ .

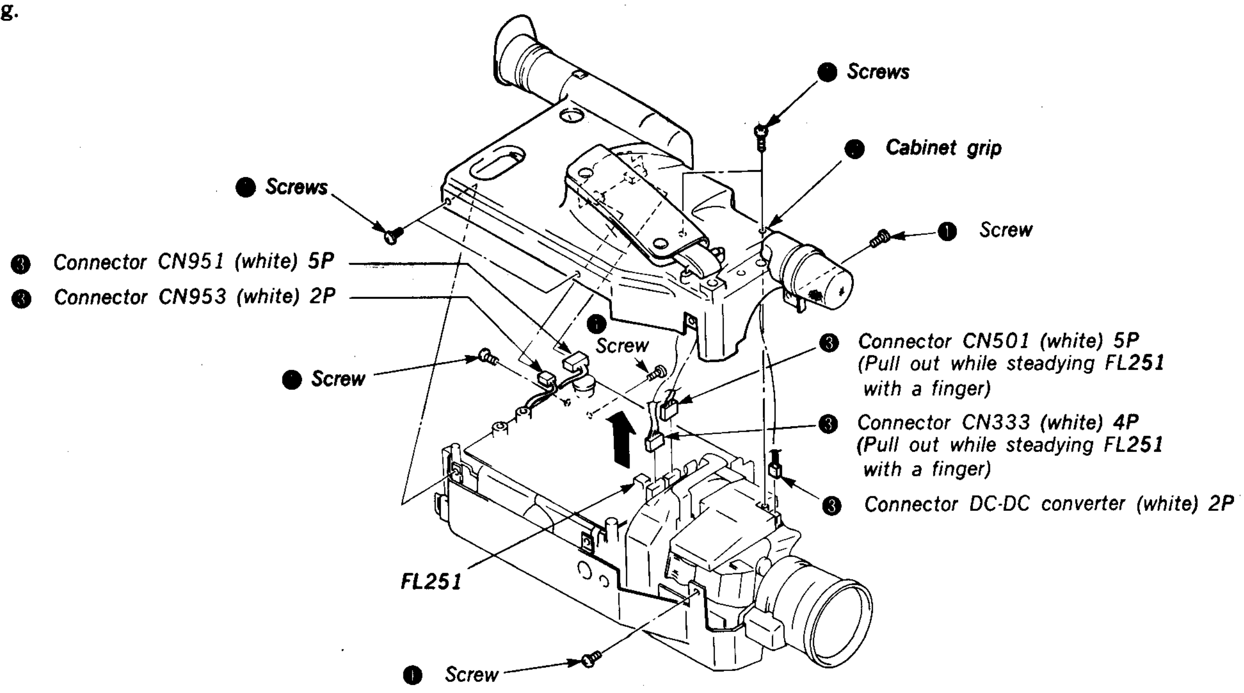
3) Remove a screw ❺ .
4) Remove upper cabinet in the direction of the arrow Ⓑ.
5) Remove FP-63 flexible board ❽ from a flexible connector (CN153) ❼ .


❶ Screws
❷ Cassette lid
❸ Claws
❹ Hole
Ⓐ
❹ Hole
❽ FP-63 flexible board
❼ Flexible connector CN153 (black)
❺ Screw
Ⓑ
❻ Upper cabinet

2-2. REMOVAL OF CABINET GRIP

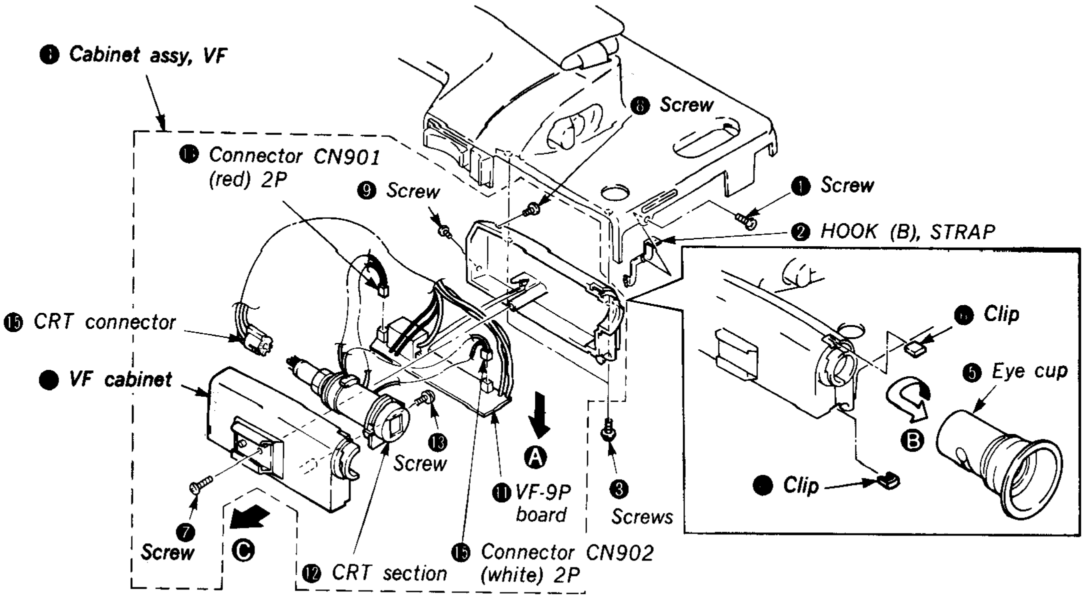
1) Remove eight screws ❶ .
2) Remove cabinet grip ❷ in the direction of the arrow.
3) Remove five connectors (CN333, CN501, CN951, CN953, DC-DC converter ❸).

Note) When installing cabinet grip, set the harness as it was before removing.


❶ Screws
❷ Cabinet grip
❶ Screws
❶ Screw
❸ Connector CN951 (white) 5P
❸ Connector CN953 (white) 2P
❶ Screw
❶ Screw
❸ Connector CN501 (white) 5P (Pull out while steadying FL251 with a finger)
❸ Connector CN333 (white) 4P (Pull out while steadying FL251 with a finger)
❸ Connector DC-DC converter (white) 2P
FL251
❶ Screw

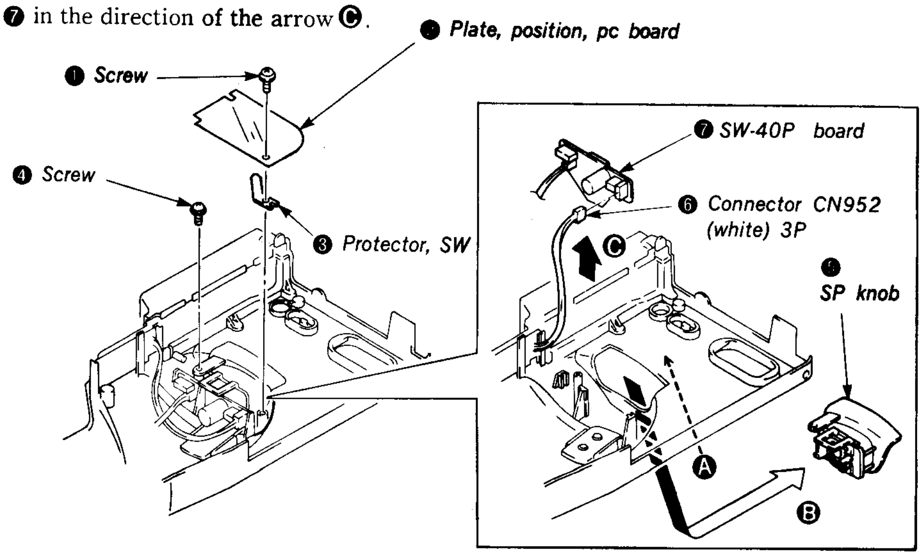
2-3. REMOVAL OF VF-9P BOARD AND CRT SECTION

1) Remove a screw ❶ .
2) Remove hook (B), strap ❷ .
3) Remove a screw ❸ .
4) Remove cabinet assy, VF ❹ in the direction of the arrow Ⓐ .
5) Remove eye cup ❺ in the direction of the arrow Ⓑ .
6) Remove two clips ❻ .
7) Remove a screw ❼ .
8) Remove a screw ❽ .
9) Remove a screw ❾ .
10) Remove VF cabinet ❿ in the direction of the arrow Ⓒ .
11) Remove VF-9P board ⓫ from VF cabinet ❿ .
12) Remove CRT section ⓬ by taking out a screw ⓭ .
13) Remove two connectors (CN901, CN902) ⓮ .
14) Remove CRT connector ⓯ .


❹ Cabinet assy, VF
⓮ Connector CN901 (red) 2P
❾ Screw
❽ Screw
❶ Screw
❷ HOOK (B), STRAP
❻ Clip
❺ Eye cup
⓯ CRT connector
❿ VF cabinet
⓭ Screw
Ⓐ
⓫ VF-9P board
❸ Screws
Ⓑ
❻ Clip
❼ Screw
Ⓒ
⓬ CRT section
⓮ Connector CN902 (white) 2P

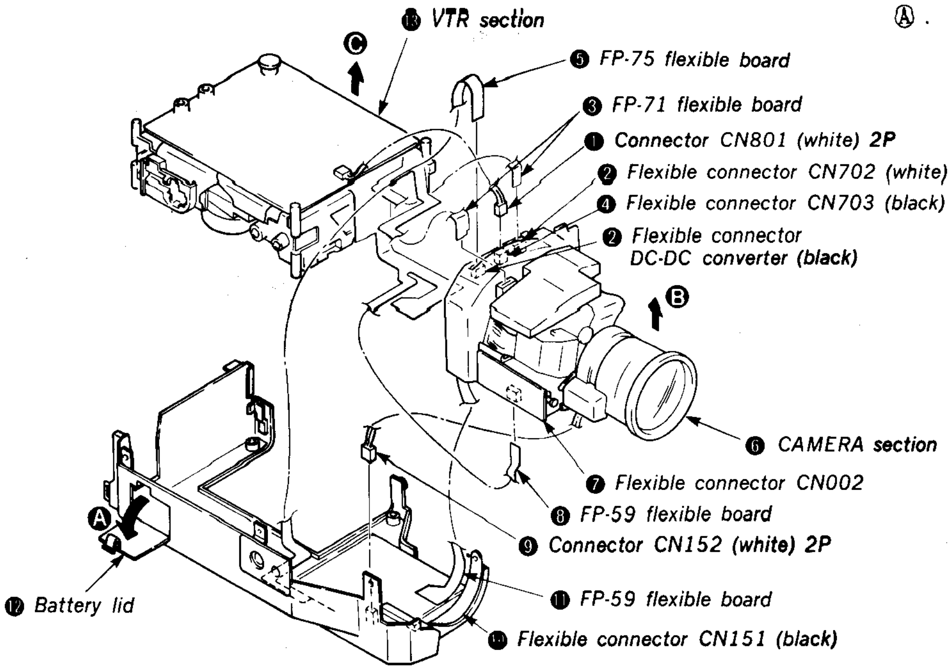
2-4. REMOVAL OF SW-40P BOARD

1) Remove a screw ❶ .
2) Remove a claw ❷ .
3) Remove a screw ❹ .
4) SP knob ❺ can be easy to remove by pushing up portion Ⓐ of cabinet with a finger.
5) Remove SP knob ❺ in the direction of the arrow Ⓑ .
6) Remove connector (CN952) ❻ .
7) Remove SW-40P board ❼ in the direction of the arrow Ⓒ .


❷ Plate, position, pc board
❶ Screw
❹ Screw
❸ Protector, SW
❼ SW-40P board
❻ Connector CN952 (white) 3P
Ⓒ
❺ SP knob
Ⓐ
Ⓑ

2-5. SEPARATION OF CAMERA SECTION AND VTR SECTION

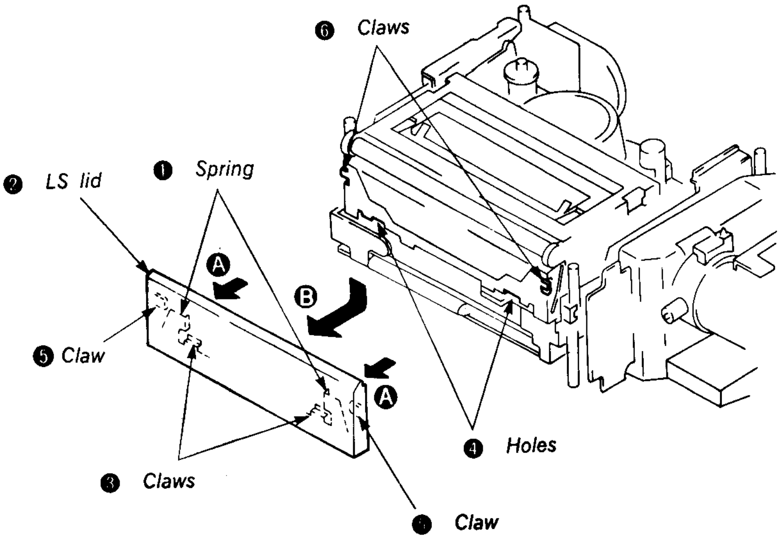
1) Remove connector (CN801) ❶ .
2) Remove FP-71 flexible connector from two flexible connectors (CN702, DC-DC converter) ❷ .
3) Remove FP-75 flexible connector from flexible connector (CN703) ❹ .
4) Remove CAMERA section ❻ in the direction of the arrow Ⓑ.
5) Remove FP-59 flexible board ❽ from a flexible connector (CN002) ❼ .
6) Remove connector CN152 ❾ .
7) Remove FP-59 flexible board ⓫ from flexible connector (CN151) ❿ .
8) Open battery lid ⓬ in the direction of the arrow Ⓐ .
9) Remove VTR section ⓭ in the direction of the arrowⒸ.


⓭ VTR section
Ⓐ .
Ⓒ
❺ FP-75 flexible board
❸ FP-71 flexible board
❶ Connector CN801 (white) 2P
❷ Flexible connector CN702 (white)
❹ Flexible connector CN703 (black)
❷ Flexible connector DC-DC converter (black)
Ⓑ
❻ CAMERA section
❼ Flexible connector CN002
❽ FP-59 flexible board
❾ Connector CN152 (white) 2P
Ⓐ
⓬ Battery lid
⓫ FP-59 flexible board
❿ Flexible connector CN151 (black)

2-6. REMOVAL OF LS LID

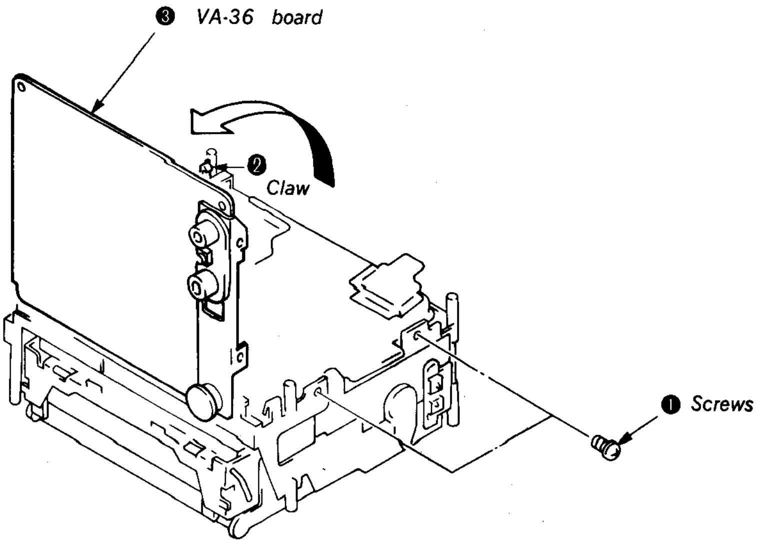
1) Insert a screwdriver into springs ❶ and push in the direction of the arrowⒶ, and then remove LS lid ❷ in the direction of the arrow Ⓑ.

Note) When installing the LS lid, set two claws ❸ into each two holes ❹ and set two claws ❺ back to with each two claws ❻ .


❻ Claws
❷ LS lid
❶ Spring
Ⓐ
Ⓑ
❺ Claw
Ⓐ
❸ Claws
❹ Holes
❺ Claw

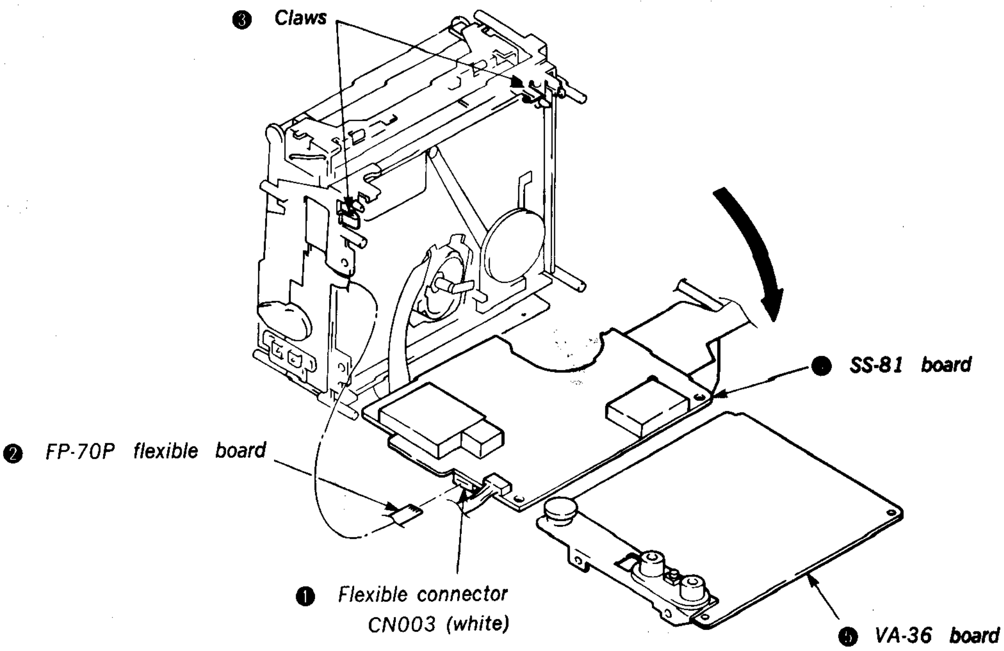
2-7. OPENING OF VA-36 BOARD

1) Remove two screws ❶ .
2) Unhook a claw ❷ .
3) Open VA-36 board ❸ in the direction of the arrow.


❸ VA-36 board
❷ Claw
❶ Screws

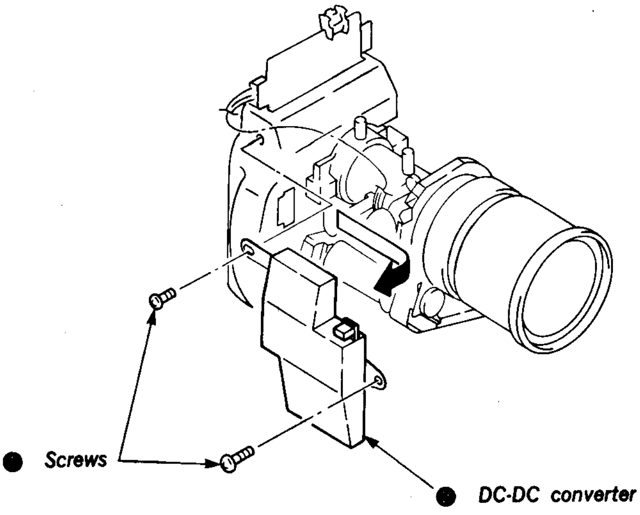
2-8. OPENING OF SS-81 BOARD

1) Remove FP-70P flexible board ❷ from flexible connector (CN003) ❶ .
2) Unhook two claws ❸ , open SS-81 board ❹ and VA-36 board ❺ in the direction of the arrow.


❸ Claws
❹ SS-81 board
❷ FP-70P flexible board
❶ Flexible connector CN003 (white)
❺ VA-36 board

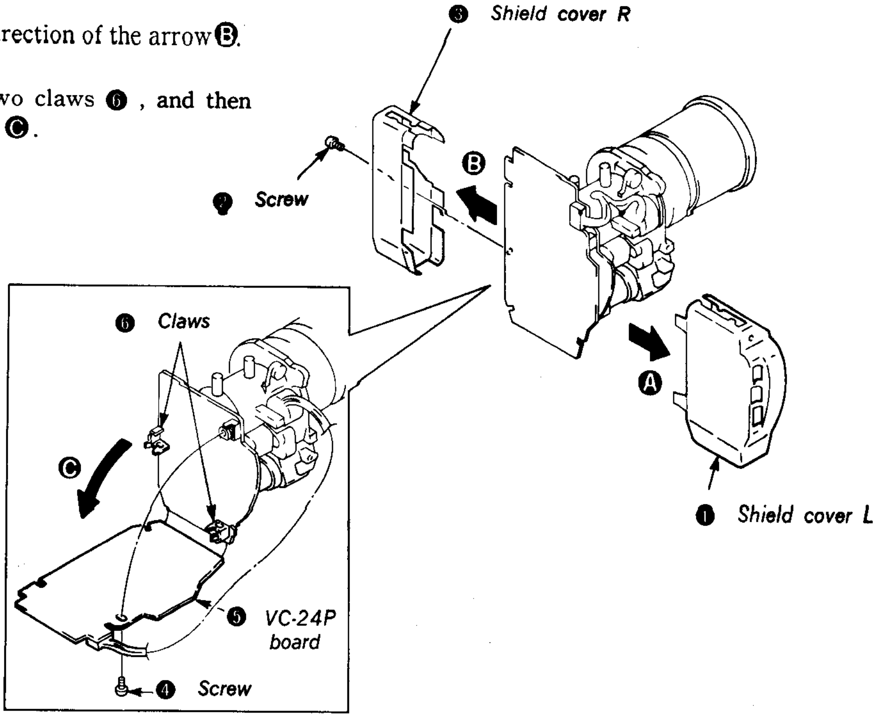
2-9. REMOVAL OF DC-DC CONVERTER

1) Remove two screws ❶ .
2) Slide DC-DC converter ❷ in the direction of the arrow, and then remove it.


❶ Screws
❷ DC-DC converter

2-10. OPENING OF VC-24P BOARD

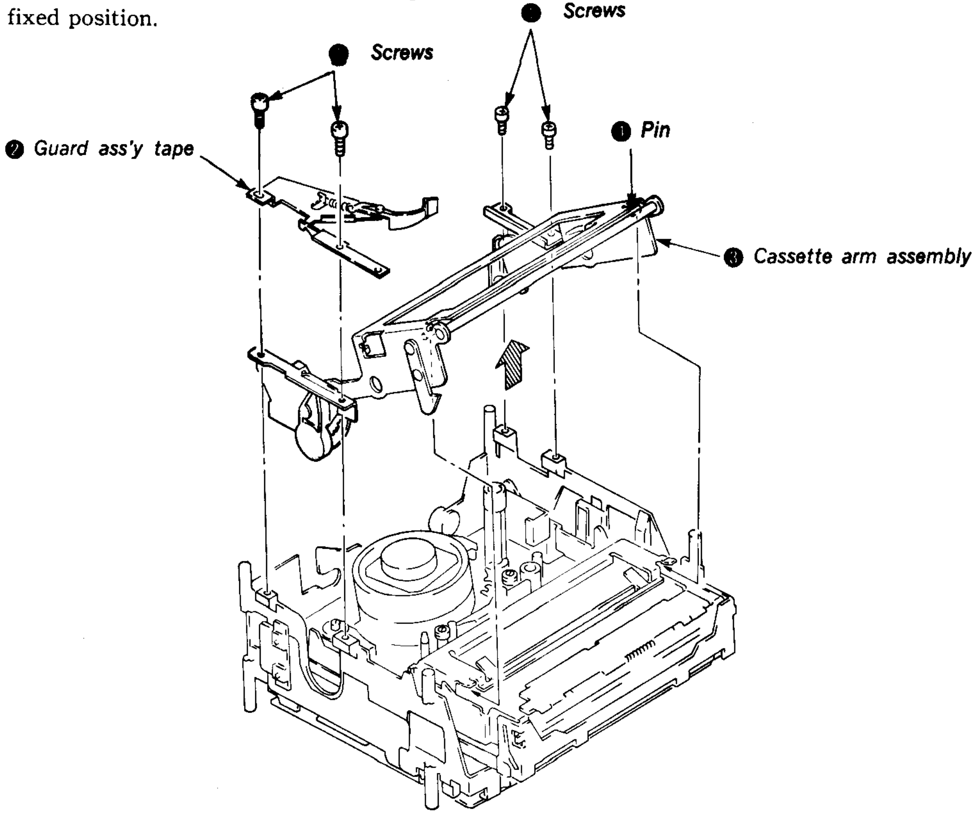
1) Remove shield cover L ❶ in the direction of the arrow Ⓐ.
2) Remove a screw ❷ .
3) Remove shield cover R ❸ in the direction of the arrow Ⓑ.
4) Remove a screw ❹ .
5) Unhook VC-24P board ❺ from two claws ❻ , and then open in the direction of the arrow Ⓒ.


❸ *Shield cover R*
Ⓑ
❷ *Screw*
❻ *Claws*
Ⓒ
❺ *VC-24P board*
❹ *Screw*
Ⓐ
❶ *Shield cover L*

2-11. REMOVAL OF CASSETTE ARM ASSEMBLY

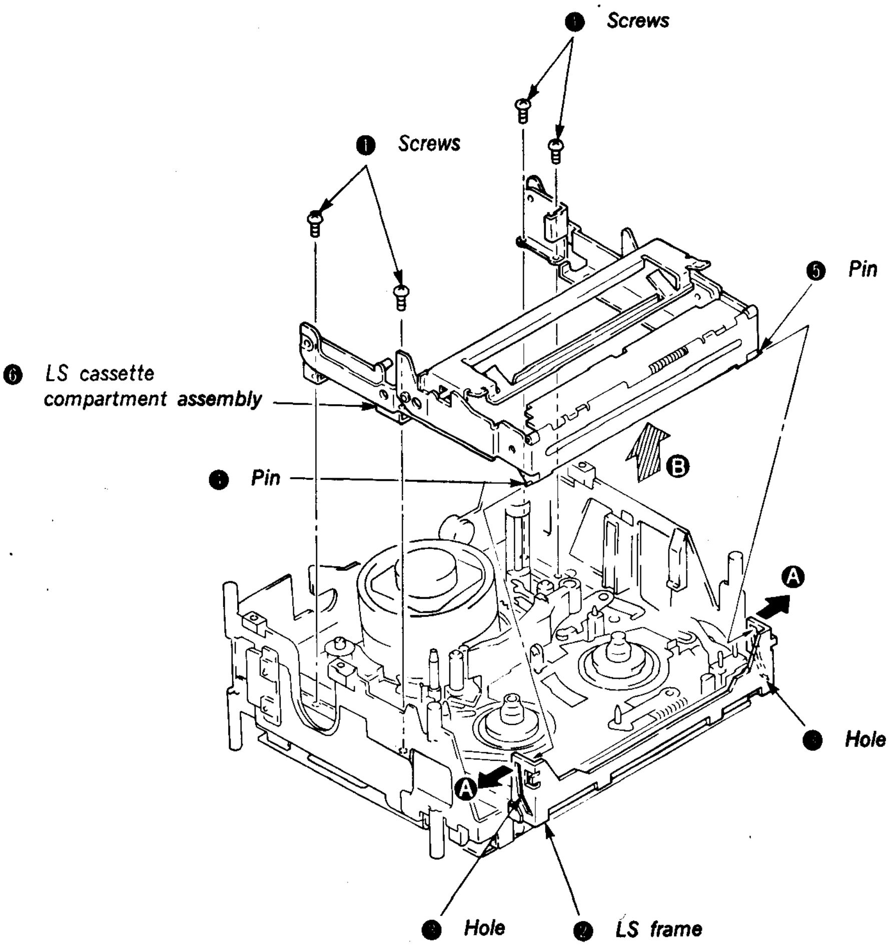
1) Remove four screws ❶ and Guard ass'y tape ❷ .
2) Remove cassette arm assembly ❸ in the direction of the arrow.

Note) When installing the cassette arm assembly ❸ , set pin ❹ into the fixed position.


❶ *Screws*
❶ *Screws*
❷ *Guard ass'y tape*
❹ *Pin*
❸ *Cassette arm assembly*

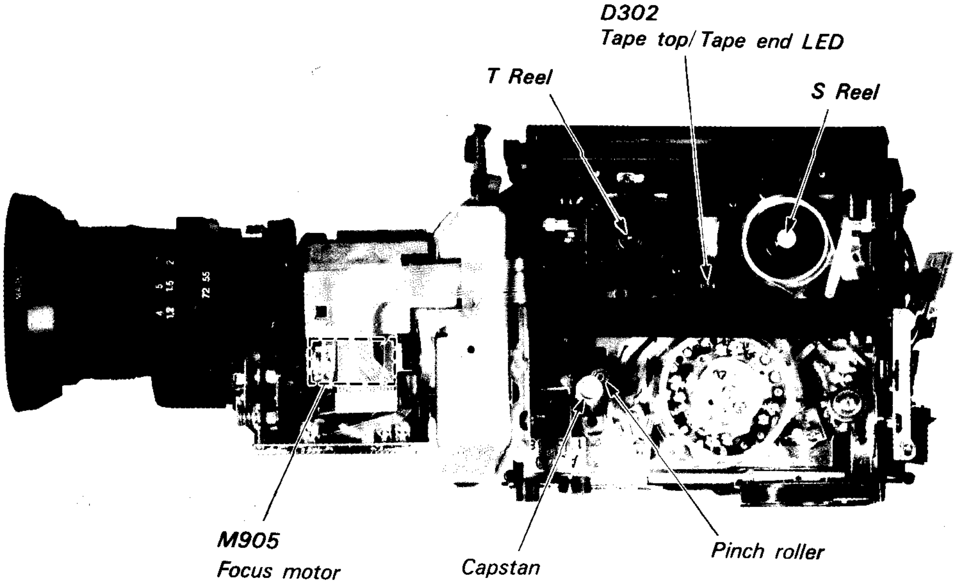
2-12. REMOVAL OF LS CASSETTE COMPARTMENT ASSEMBLY

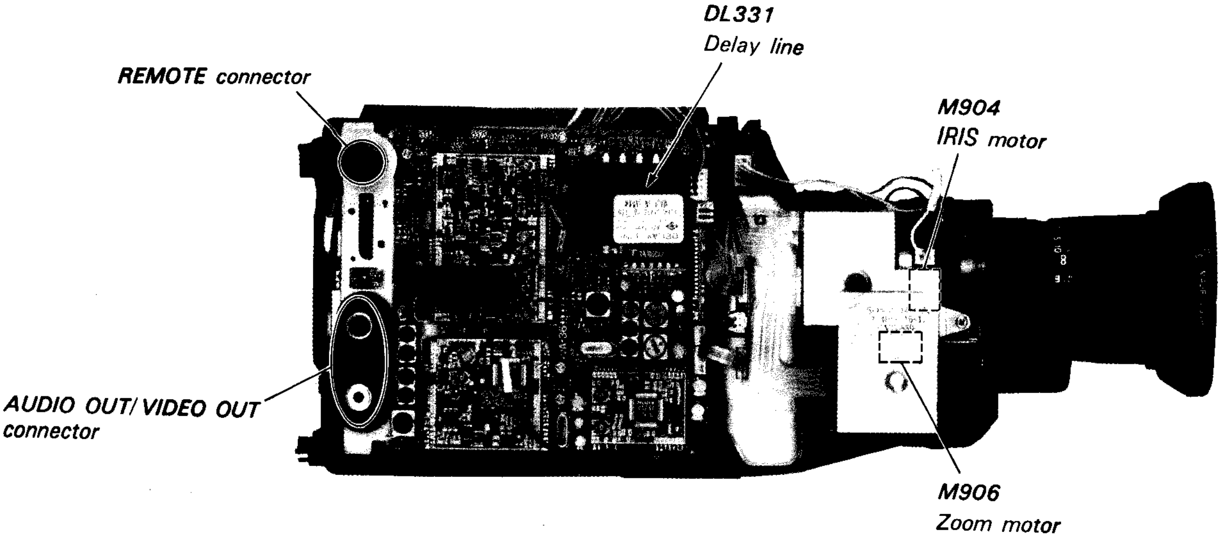
1) Remove four screws ❶ .
2) Take pin ❹ and pin ❺ out of the slits ❸ of LS frame by pushing slit portions ❸ in the direction of the arrow Ⓐ (Remove pin ❹ first, because it is rather shorter than pin ❺ .).
3) Remove LS cassette compartment ❻ in the direction of the arrow Ⓑ .



❶ Screws
❶ Screws
❺ Pin
❻ LS cassette compartment assembly
❹ Pin
Ⓑ
Ⓐ
Ⓐ
❸ Hole
❸ Hole
❷ LS frame

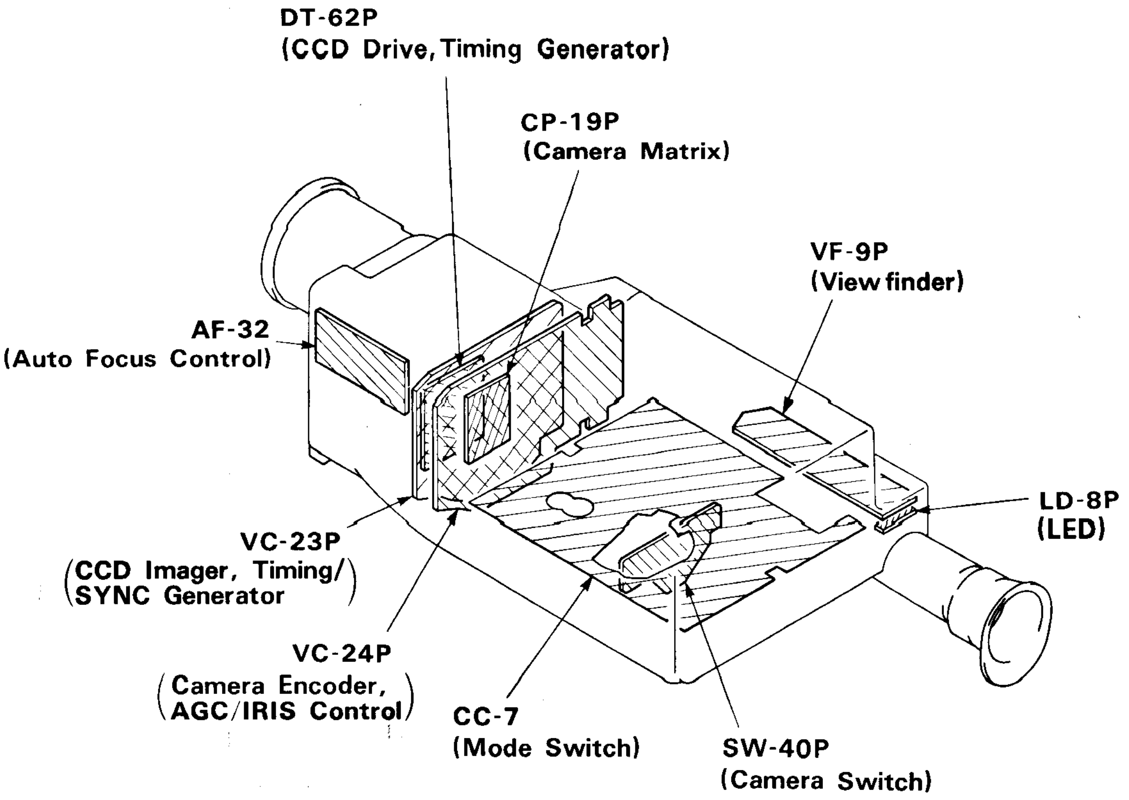
2-13. INTERNAL VIEWS

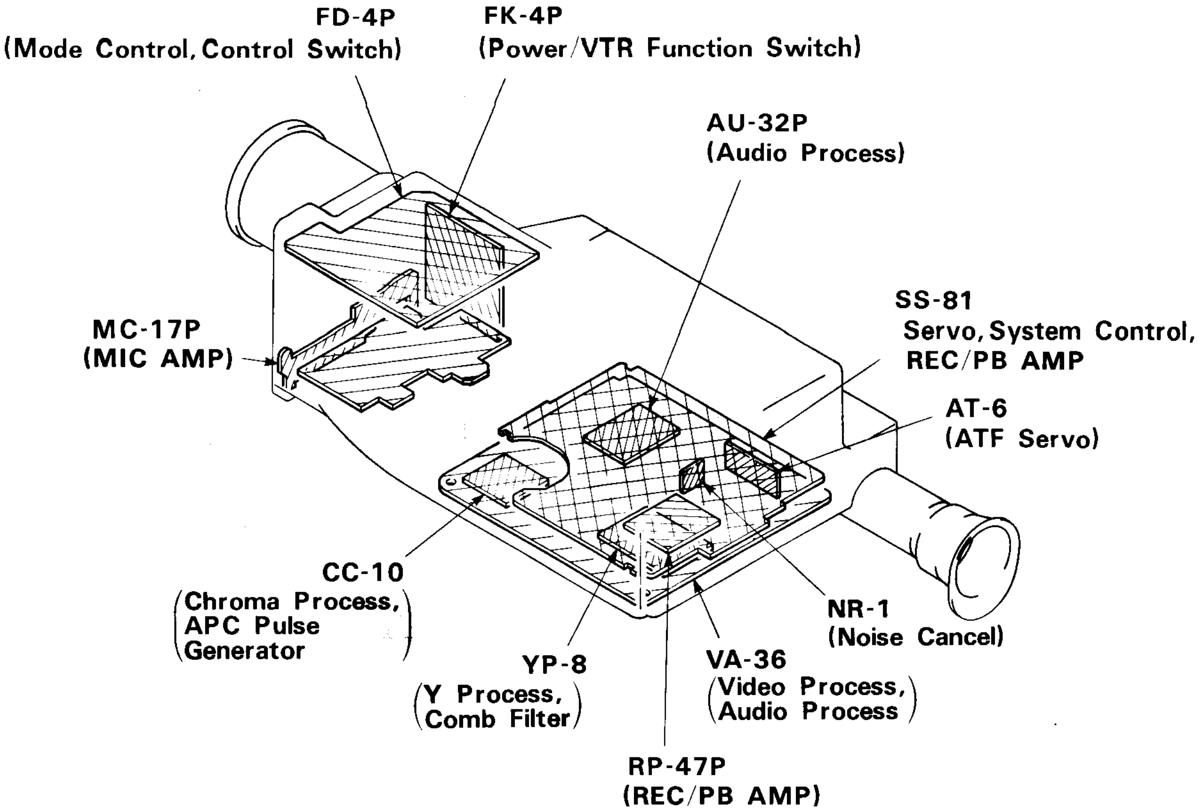

D302
Tape top/Tape end LED
T Reel
S Reel
M905
Focus motor
Capstan
Pinch roller


DL331
Delay line
REMOTE connector
M904
IRIS motor
AUDIO OUT/VIDEO OUT
connector
M906
Zoom motor

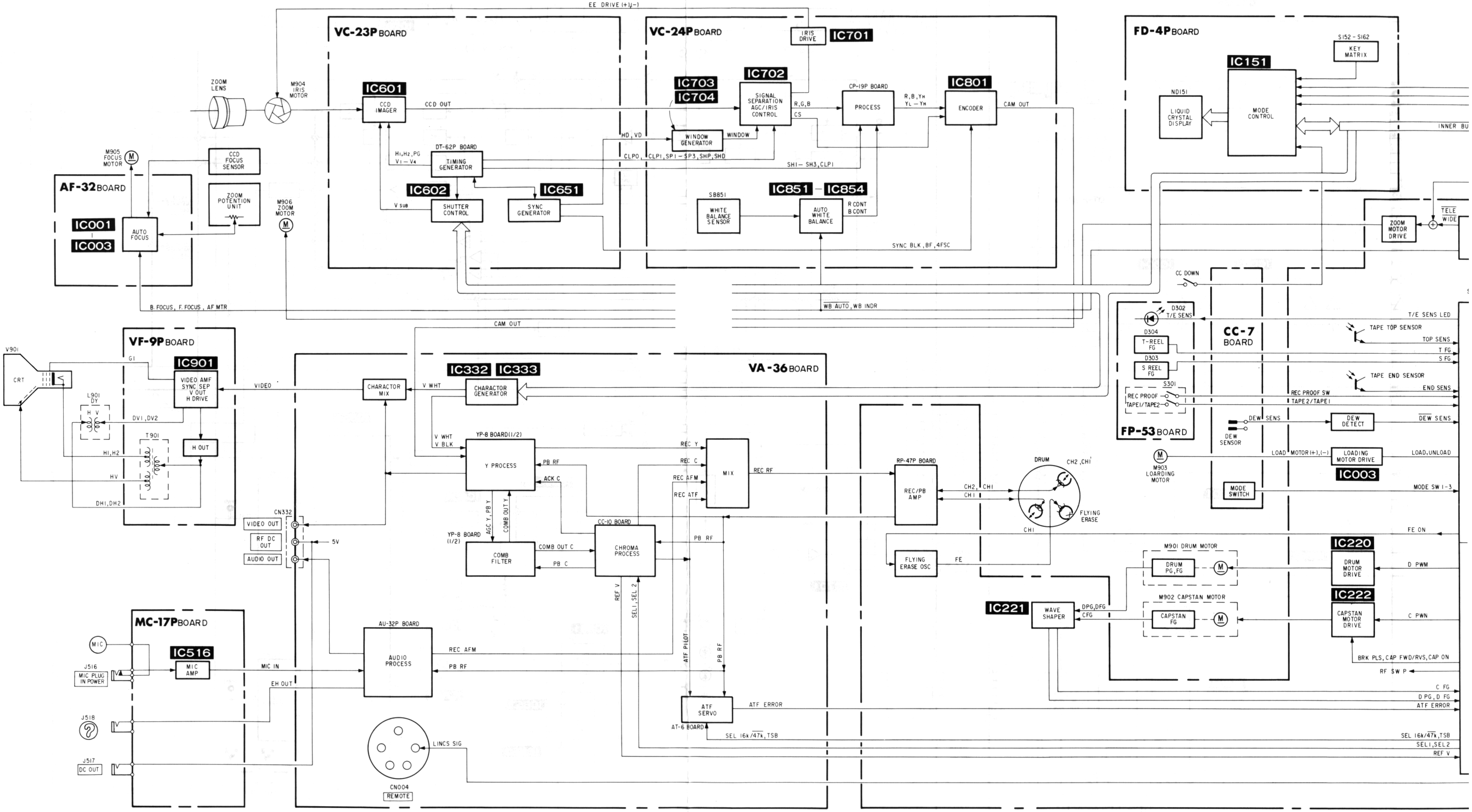
SECTION 3
DIAGRAM

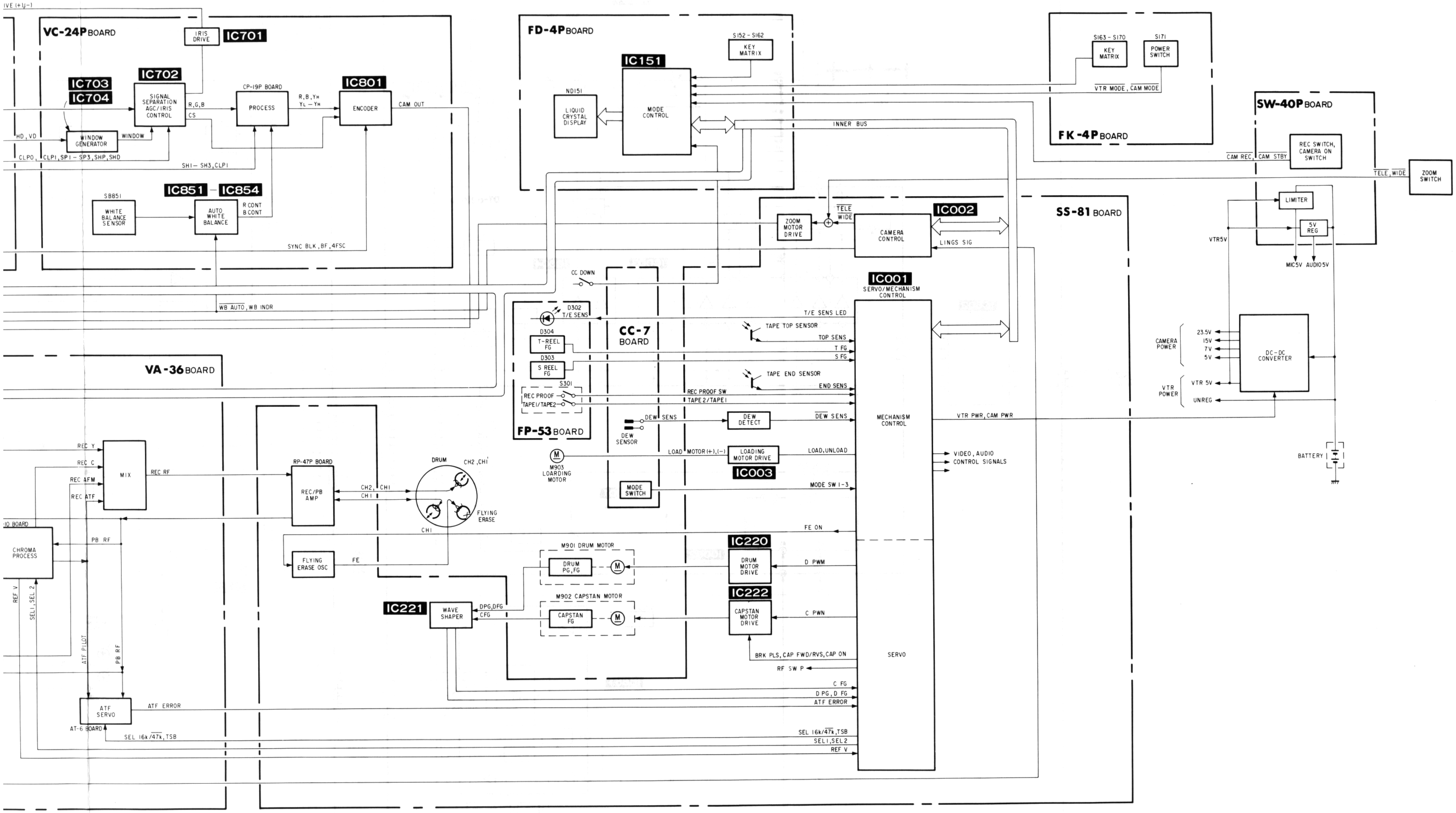
3-1. CIRCUIT BOARDS LOCATION


DT-62P
(CCD Drive, Timing Generator)
CP-19P
(Camera Matrix)
VF-9P
(View finder)
AF-32
(Auto Focus Control)
LD-8P
(LED)
VC-23P
(CCD Imager, Timing/SYNC Generator)
VC-24P
(Camera Encoder, AGC/IRIS Control)
CC-7
(Mode Switch)
SW-40P
(Camera Switch)

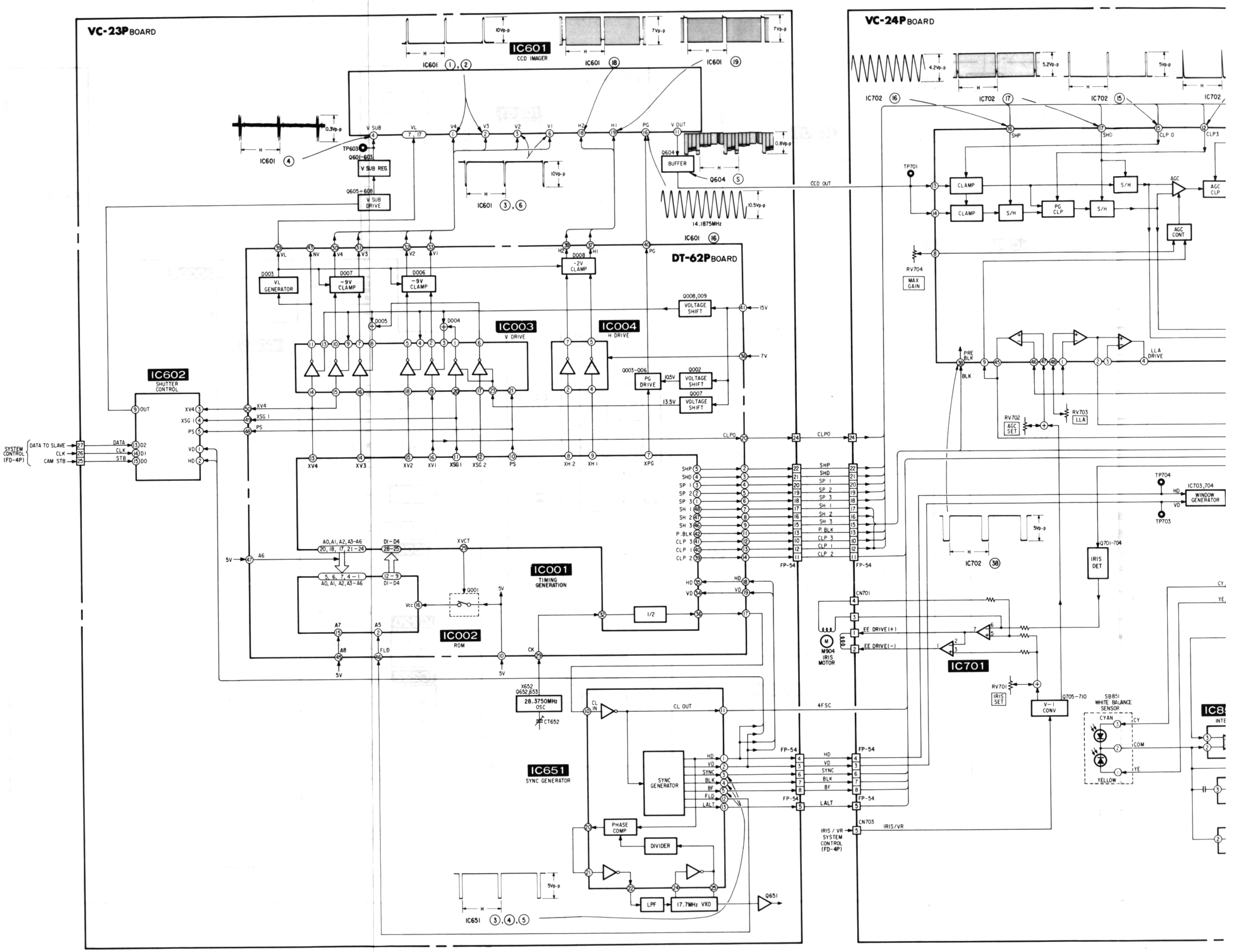

FD-4P
(Mode Control, Control Switch)
FK-4P
(Power/VTR Function Switch)
AU-32P
(Audio Process)
SS-81
Servo, System Control, REC/PB AMP
MC-17P
(MIC AMP)
AT-6
(ATF Servo)
CC-10
(Chroma Process, APC Pulse Generator)
NR-1
(Noise Cancel)
YP-8
(Y Process, Comb Filter)
VA-36
(Video Process, Audio Process)
RP-47P
(REC/PB AMP)

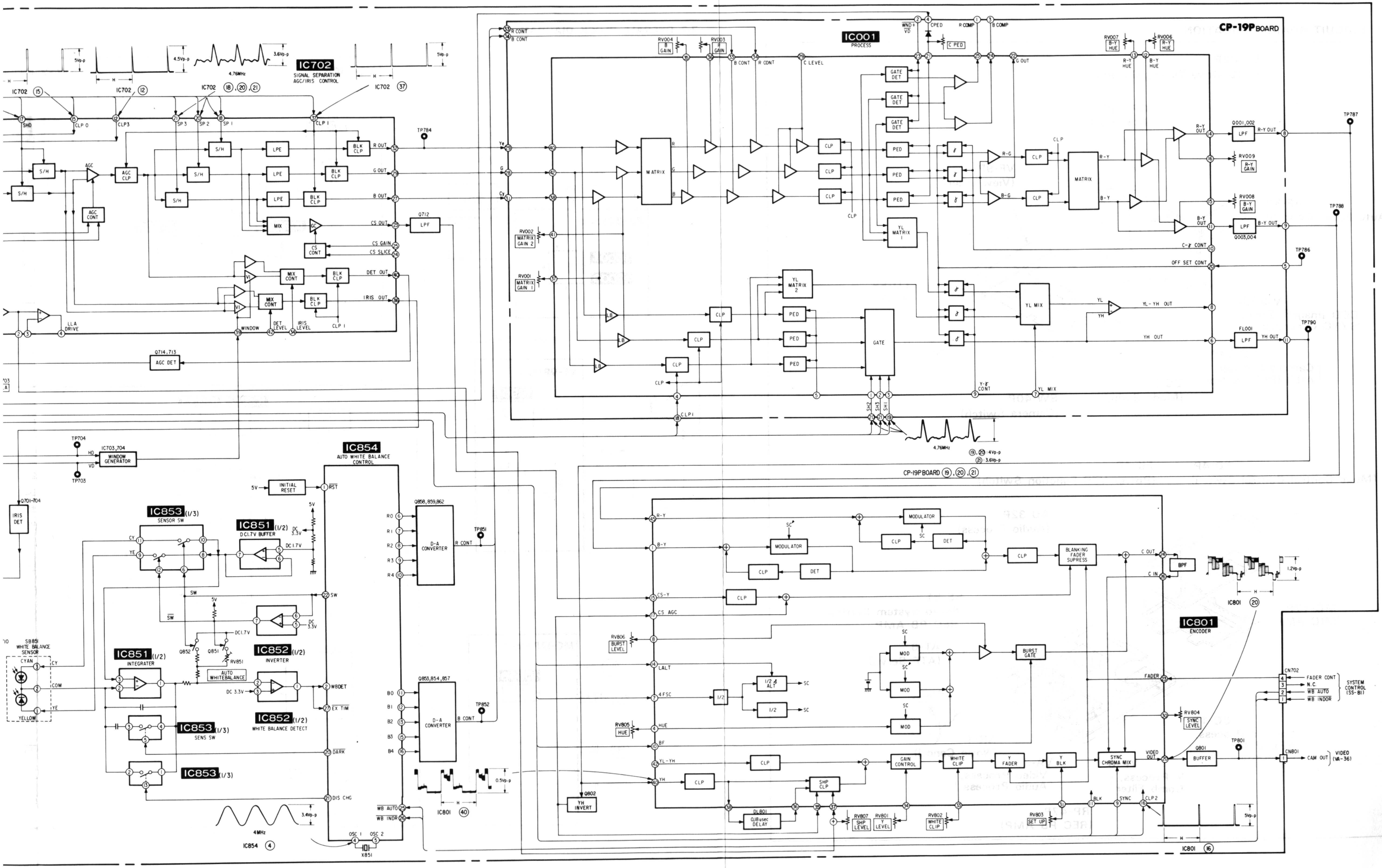
3-2. OVERALL BLOCK DIAGRAM


EE DRIVE (+)/(-)
VC-23P BOARD
VC-24P BOARD
FD-4P BOARD
ZOOM LENS
M904 IRIS MOTOR
IC601
CCD IMAGER
CCD OUT
IRIS DRIVE
IC701
IC703
IC704
IC702
SIGNAL SEPARATION AGC/IRIS CONTROL
R,G,B
CS
CP-19P BOARD
PROCESS
R,B,YH
YL - YH
IC801
ENCODER
CAM OUT
S152 - S162
KEY MATRIX
IC151
ND151
LIQUID CRYSTAL DISPLAY
MODE CONTROL
INNER BU
M905 FOCUS MOTOR
CCD FOCUS SENSOR
AF-32 BOARD
IC001
IC003
AUTO FOCUS
ZOOM POTENTION UNIT
M906 ZOOM MOTOR
DT-62P BOARD
H1,H2,PG
V1 - V4
TIMING GENERATOR
HD, VD
WINDOW GENERATOR
WINDOW
CLPO, CLP1, SP1 - SP3, SHP, SHD
SH1 - SH3, CLP1
IC602
IC651
V SUB
SHUTTER CONTROL
SYNC GENERATOR
SB851
WHITE BALANCE SENSOR
IC851 - IC854
AUTO WHITE BALANCE
R CONT
B CONT
SYNC BLK, BF, 4FSC
TELE
WIDE
ZOOM MOTOR DRIVE
CC DOWN
B. FOCUS, F. FOCUS, AF MTR
WB AUTO, WB INDR
CAM OUT
D302 T/E SENS
T/E SENS LED
TAPE TOP SENSOR
TOP SENS
T FG
S FG
D304
T-REEL FG
D303
S REEL FG
S301
REC PROOF
TAPE1/TAPE2
TAPE END SENSOR
END SENS
REC PROOF SW
TAPE 2/TAPE 1
CC-7 BOARD
FP-53 BOARD
DEW SENS
DEW SENSOR
DEW DETECT
DEW SENS
M903 LOARDING MOTOR
LOAD MOTOR (+), (-)
LOADING MOTOR DRIVE
LOAD, UNLOAD
IC003
MODE SWITCH
MODE SW 1 - 3
V901
CRT
VF-9P BOARD
G1
IC901
VIDEO AMF SYNC SEP V OUT H DRIVE
VIDEO
L901 DY
H V
DV1, DV2
T901
H OUT
H1, H2
HV
DH1, DH2
VA-36 BOARD
CHARACTOR MIX
V WHT
IC332
IC333
CHARACTOR GENERATOR
V WHT
V BLK
YP-8 BOARD (1/2)
Y PROCESS
PB RF
ACK C
REC Y
REC C
REC AFM
REC ATF
MIX
REC RF
RP-47P BOARD
REC/PB AMP
CH2, CH1
CH1
DRUM
CH2, CH1
FLYING ERASE
CH1
AGC Y, PB Y
COMB OUT Y
YP-8 BOARD (1/2)
COMB FILTER
COMB OUT C
PB C
CC-10 BOARD
CHROMA PROCESS
PB RF
CN332
VIDEO OUT
RF DC OUT
AUDIO OUT
5V
FE ON
FLYING ERASE OSC
FE
M901 DRUM MOTOR
DRUM PG, FG
IC220
DRUM MOTOR DRIVE
D PWM
REF V
SEL1, SEL 2
IC221
WAVE SHAPER
DPG, DFG
CFG
M902 CAPSTAN MOTOR
CAPSTAN FG
IC222
CAPSTAN MOTOR DRIVE
C PWM
MC-17P BOARD
MIC
IC516
J516
MIC PLUG IN POWER
MIC AMP
MIC IN
EH OUT
AU-32P BOARD
AUDIO PROCESS
REC AFM
PB RF
ATF PILOT
PB RF
BRK PLS, CAP FWD/RVS, CAP ON
RF SW P
C FG
D PG, D FG
ATF ERROR
J518
J517
DC OUT
ATF SERVO
AT-6 BOARD
ATF ERROR
SEL 16k/47k, TSB
SEL 16k/47k, TSB
SEL1, SEL2
REF V
LINCS SIG
CN004
REMOTE

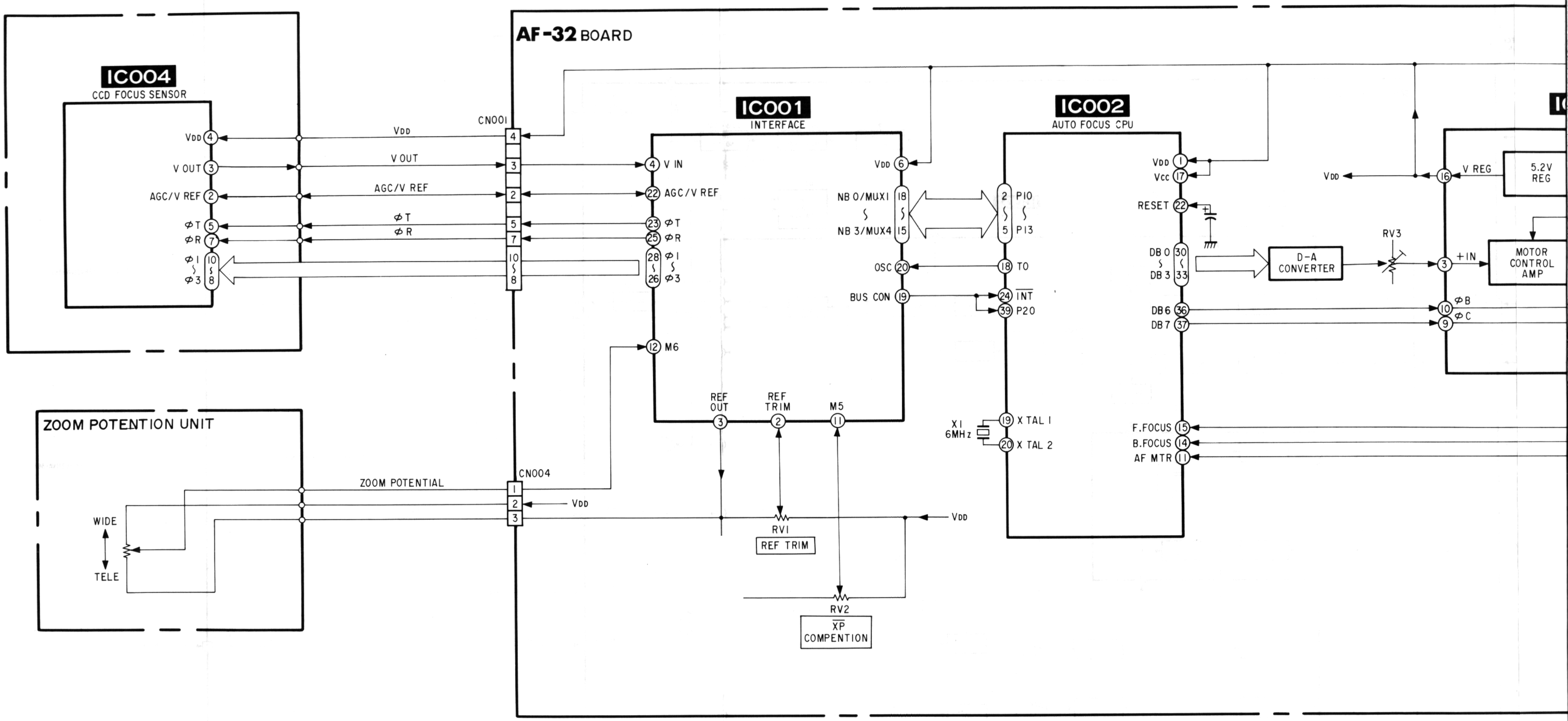

VC-24P BOARD
IRIS DRIVE
IC701
IC703
IC704
IC702
SIGNAL SEPARATION AGC/IRIS CONTROL
CP-19P BOARD
PROCESS
R,G,B
CS
R,B,YH
YL – YH
IC801
ENCODER
CAM OUT
HD, VD
WINDOW GENERATOR
WINDOW
CLPO, CLP1, SP1 – SP3, SHP, SHD
SH1 – SH3, CLP1
S8851
WHITE BALANCE SENSOR
IC851 – IC854
AUTO WHITE BALANCE
R CONT
B CONT
SYNC BLK, BF, 4FSC
WB AUTO, WB INDR
FD-4P BOARD
S152 – S162
KEY MATRIX
IC151
ND151
LIQUID CRYSTAL DISPLAY
MODE CONTROL
INNER BUS
FK-4P BOARD
S163 – S170
KEY MATRIX
S171
POWER SWITCH
VTR MODE, CAM MODE
SW-40P BOARD
REC SWITCH, CAMERA ON SWITCH
CAM REC, CAM STBY
TELE, WIDE
ZOOM SWITCH
LIMITER
5V REG
VTR5V
MIC5V
AUDIO5V
SS-81 BOARD
ZOOM MOTOR DRIVE
TELE
WIDE
IC002
CAMERA CONTROL
LINGS SIG
IC001
SERVO/MECHANISM CONTROL
CC DOWN
CC-7 BOARD
FP-53 BOARD
D302
T/E SENS
T/E SENS LED
D304
T-REEL FG
D303
S REEL FG
TAPE TOP SENSOR
TOP SENS
T FG
S FG
TAPE END SENSOR
END SENS
S301
REC PROOF
TAPE1/TAPE2
REC PROOF SW
TAPE 2/TAPE 1
DEW SENS
DEW SENSOR
DEW DETECT
DEW SENS
MECHANISM CONTROL
VTR PWR, CAM PWR
M903
LOARDING MOTOR
LOAD MOTOR (+), (–)
LOADING MOTOR DRIVE
IC003
LOAD, UNLOAD
VIDEO, AUDIO CONTROL SIGNALS
MODE SWITCH
MODE SW 1–3
CAMERA POWER
23.5V
15V
7V
5V
DC-DC CONVERTER
VTR POWER
VTR 5V
UNREG
BATTERY
VA-36 BOARD
REC Y
REC C
REC AFM
REC ATF
MIX
REC RF
RP-47P BOARD
REC/PB AMP
CH2, CH1
CH1
DRUM
CH2, CH1
FLYING ERASE
CH1
CHROMA PROCESS
PB RF
FLYING ERASE OSC
FE
FE ON
M901 DRUM MOTOR
DRUM PG, FG
IC220
DRUM MOTOR DRIVE
D PWM
M902 CAPSTAN MOTOR
CAPSTAN FG
IC222
CAPSTAN MOTOR DRIVE
C PWN
IC221
WAVE SHAPER
DPG, DFG
CFG
BRK PLS, CAP FWD/RVS, CAP ON
RF SW P
SERVO
REF V
SEL1, SEL2
ATF PILOT
PB RF
C FG
D PG, D FG
ATF ERROR
ATF SERVO
AT-6 BOARD
ATF ERROR
SEL 16k/47k, TSB
SEL 16k/47k, TSB
SEL1, SEL2
REF V

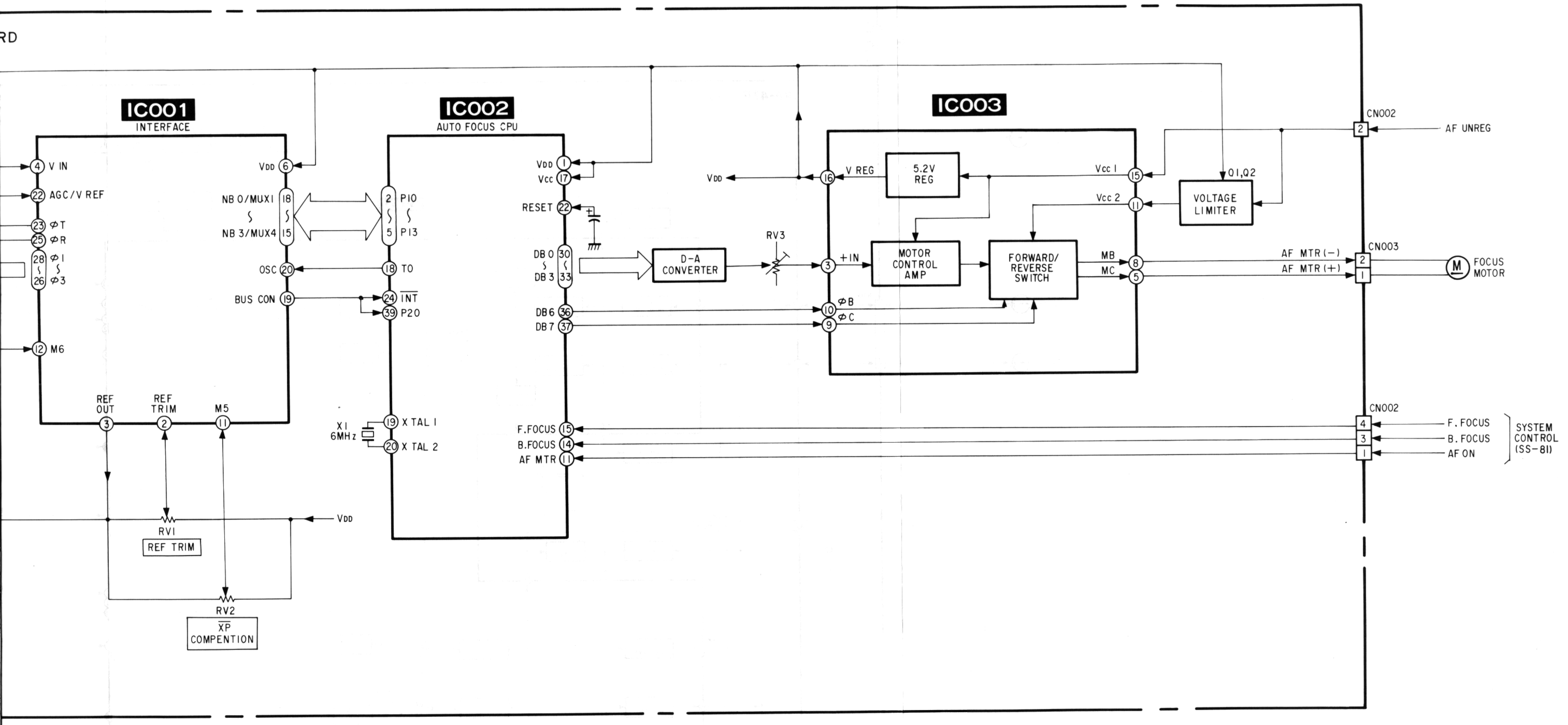
3-3. CAMERA BLOCK DIAGRAM


VC-23P BOARD
IC601 CCD IMAGER
IC601 ①,②
IC601 ⑱
IC601 ⑲
IC601 ④
IC601 ③,⑥
IC601 ⑯
10Vp-p
7Vp-p
0.3Vp-p
0.8Vp-p
10.5Vp-p
14.1875MHz
V SUB
VL
V4
V3
V2
V1
H2
H1
PG
V OUT
TP603
Q601-603
V SUB REG.
Q605-608
V SUB DRIVE
Q604
BUFFER
Q604 ⑤
CCD OUT
DT-62P BOARD
D003
VL GENERATOR
D007
-9V CLAMP
D006
-9V CLAMP
D008
-2V CLAMP
D005
D004
IC003
V DRIVE
IC004
H DRIVE
Q008,009
VOLTAGE SHIFT
15V
7V
Q003-006
PG DRIVE
Q002
VOLTAGE SHIFT
Q007
VOLTAGE SHIFT
10.5V
13.5V
IC602
SHUTTER CONTROL
OUT
XV4
XSG 1
PS
VD
HD
D2
D1
D0
SYSTEM CONTROL (FD-4P)
DATA TO SLAVE
CLK
CAM STB
DATA
STB
XV3
XV2
XV1
XSG 2
XH 2
XH 1
XPG
CLPO
SHP
SHD
SP 1
SP 2
SP 3
SH 1
SH 2
SH 3
P.BLK
CLP 3
CLP 1
CLP 2
FP-54
A0, A1, A2, A3-A6
20, 18, 17, 21-24
D1-D4
28-25
XVCT
5, 6, 7, 4-1
12-9
IC001
TIMING GENERATION
Q001
5V
A6
A7
A5
A8
FLD
CK
IC002
ROM
1/2
X652
Q652,653
28.3750MHz OSC
CT652
IC651
SYNC GENERATOR
CL IN
CL OUT
SYNC GENERATOR
HD
VD
SYNC
BLK
BF
FLD
LALT
PHASE COMP
DIVIDER
LPF
17.7MHz VXO
Q651
IC651 ③,④,⑤
5Vp-p
4FSC
VC-24P BOARD
IC702 ⑯
IC702 ⑰
IC702 ⑮
IC702
4.2Vp-p
5.2Vp-p
5Vp-p
SHP
SHD
CLP O
CLP3
TP701
CLAMP
CLAMP
S/H
PG CLP
S/H
S/H
AGC
AGC CLP
AGC CONT
RV704
MAX GAIN
PRE BLK
BLK
LLA DRIVE
RV702
AGC SET
RV703
LLA
TP704
IC703,704
WINDOW GENERATOR
TP703
IC702 ㊳
Q701-704
IRIS DET
CN701
EE DRIVE(+)
EE DRIVE(-)
M904
IRIS MOTOR
IC701
RV701
IRIS SET
Q705-710
V-I CONV
SB851
WHITE BALANCE SENSOR
CYAN
YELLOW
CY
COM
YE
CN703
IRIS/VR
IRIS / VR SYSTEM CONTROL (FD-4P)
IC8
INTE

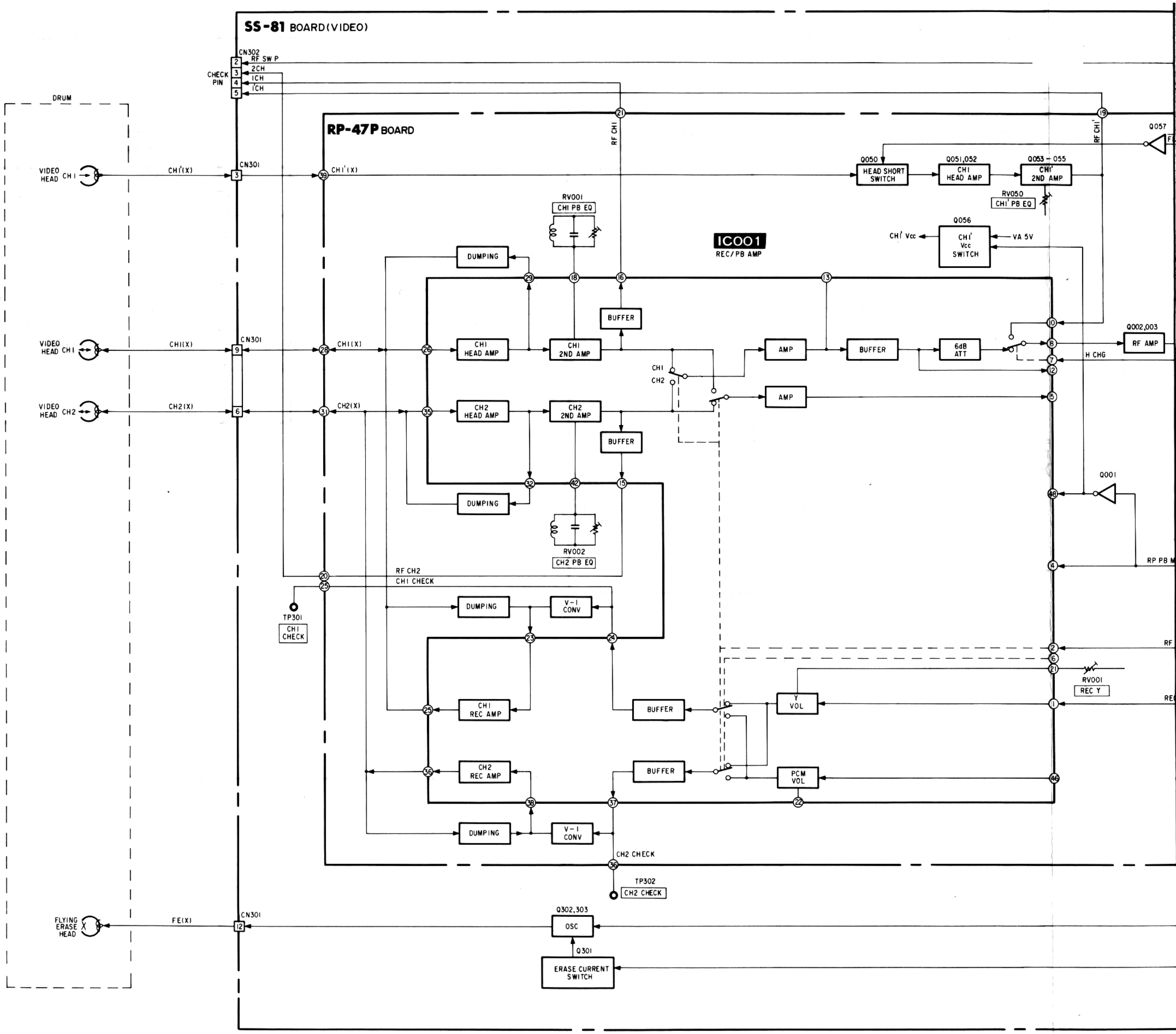

CP-19P BOARD
IC702
SIGNAL SEPARATION AGC/IRIS CONTROL
IC001
PROCESS
IC854
AUTO WHITE BALANCE CONTROL
IC853 (1/3)
SENSOR SW
IC851 (1/2)
DC1.7V BUFFER
IC851 (1/2)
INTEGRATER
IC852 (1/2)
INVERTER
IC852 (1/2)
WHITE BALANCE DETECT
IC853 (1/3)
SENS SW
IC853 (1/3)
IC801
ENCODER
SB851 WHITE BALANCE SENSOR
CYAN
YELLOW
S/H
AGC
AGC CLP
AGC CONT
LPE
BLK CLP
MIX
CS CONT
MIX CONT
LLA DRIVE
WINDOW
DET LEVEL
IRIS LEVEL
AGC DET
Q714,713
Q712
LPF
R OUT
G OUT
B OUT
CS OUT
CS GAIN
CS SLICE
DET OUT
IRIS OUT
TP784
IC703,704
WINDOW GENERATOR
TP704
TP703
IRIS DET
Q701~704
INITIAL RESET
5V
D-A CONVERTER
Q858,859,862
Q853,854,857
R CONT
B CONT
TP851
TP852
WB DET
EX TIM
DARK
DIS CHG
WB AUTO
WB INDR
OSC 1
OSC 2
X851
AUTO WHITE BALANCE
RV851
Q852
Q851
DC 3.3V
DC 1.7V
4.76MHz
4MHz
3.4Vp-p
0.5Vp-p
IC854 ④
IC801 ⑳
IC801 ⑯
IC801 ㊵
MATRIX
GATE DET
PED
CLP
YL MATRIX 1
YL MATRIX 2
YL MIX
GATE
LPF
Q001,002
Q003,004
FL001
R-Y OUT
B-Y OUT
YH OUT
YL-YH OUT
C-γ CONT
OFF SET CONT
Y-γ CONT
RV001 MATRIX GAIN 1
RV002 MATRIX GAIN 2
RV003 R GAIN
RV004 B GAIN
RV006 R-Y HUE
RV007 B-Y HUE
RV008 B-Y GAIN
RV009 R-Y GAIN
TP787
TP788
TP786
TP790
C PED
WND VD
R COMP
B COMP
C LEVEL
CP-19P BOARD ⑲,⑳,㉑
⑲,⑳ 4Vp-p
㉑ 3.6Vp-p
MODULATOR
DET
BLANKING FADER SUPRESS
BPF
C OUT
C IN
CS-Y
CS AGC
LALT
4FSC
HUE
BF
YL-YH
YH
MOD
1/2 ALT
1/2
SC
BURST GATE
RV806 BURST LEVEL
RV805 HUE
RV804 SYNC LEVEL
Q802
YH INVERT
DL801
0.18μsec DELAY
SHP CLP
GAIN CONTROL
WHITE CLIP
Y FADER
Y BLK
SYNC CHROMA MIX
VIDEO OUT
Q801
BUFFER
TP801
RV807 SHP LEVEL
RV801 Y LEVEL
RV802 WHITE CLIP
RV803 SET UP
FADER
SYNC
CLP 2
BLK
CN702
FADER CONT
N.C.
WB AUTO
WB INDOR
SYSTEM CONTROL (SS-81)
CN801
CAM OUT
VIDEO (VA-36)
1.2Vp-p
5Vp-p
4.5Vp-p
3.6Vp-p

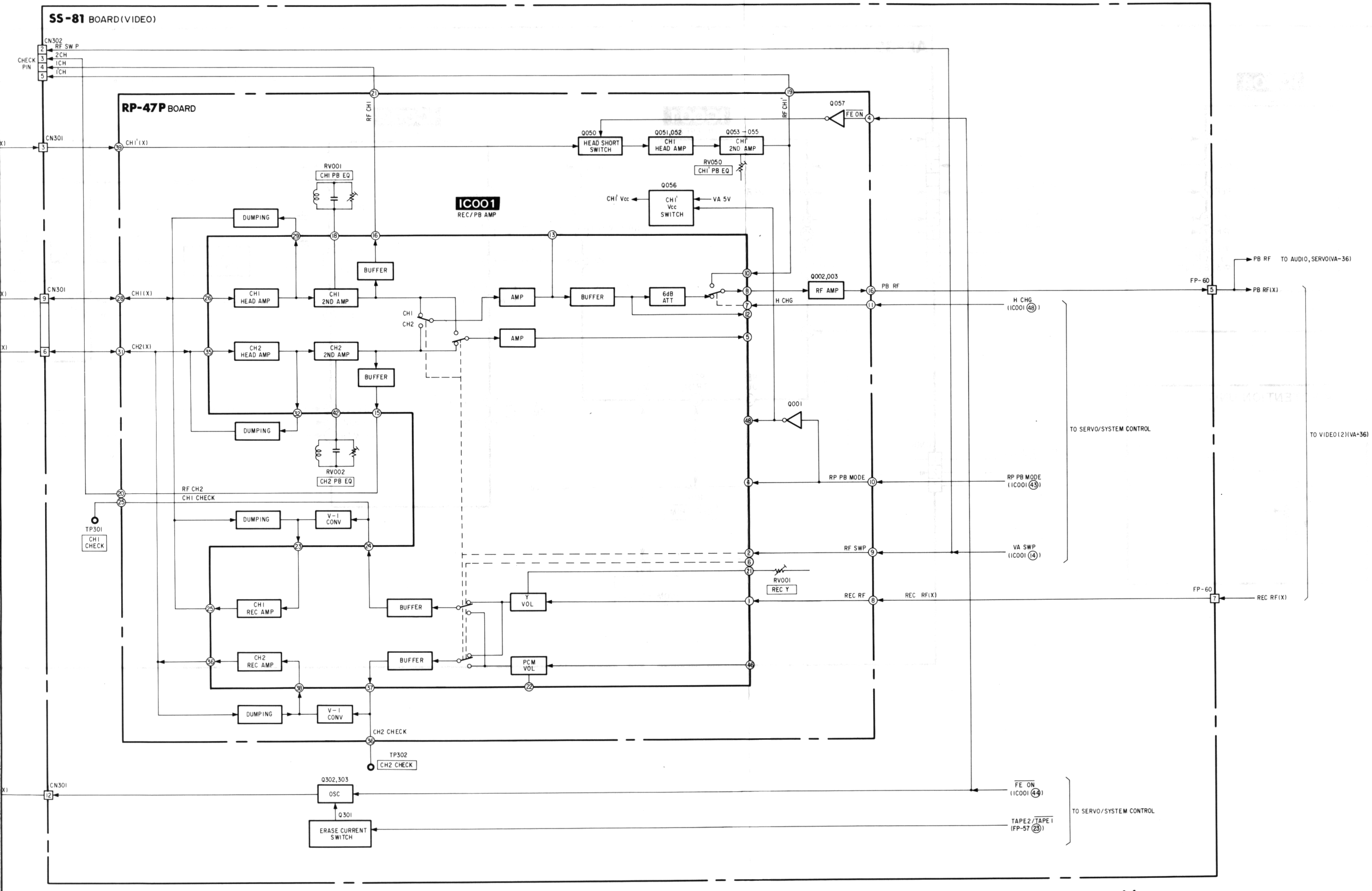
3-4. AUTO FOCUS BLOCK DIAGRAM


IC004
CCD FOCUS SENSOR
VDD 4
V OUT 3
AGC/V REF 2
φT 5
φR 7
φ1 10
φ3 8
CN001
VDD
V OUT
AGC/V REF
φT
φR
AF-32 BOARD
IC001
INTERFACE
4 V IN
22 AGC/V REF
23 φT
25 φR
28 φ1
26 φ3
12 M6
VDD 6
NB 0/MUX1 18
NB 3/MUX4 15
OSC 20
BUS CON 19
REF OUT 3
REF TRIM 2
M5 11
IC002
AUTO FOCUS CPU
2 P10
5 P13
18 T0
24 INT
39 P20
19 XTAL 1
20 XTAL 2
X1 6MHz
VDD 1
VCC 17
RESET 22
DB 0 30
DB 3 33
DB6 36
DB7 37
F.FOCUS 15
B.FOCUS 14
AF MTR 11
D-A CONVERTER
RV3
VDD
16 V REG
5.2V REG
3 +IN
MOTOR CONTROL AMP
10 φB
9 φC
ZOOM POTENTION UNIT
WIDE
TELE
ZOOM POTENTIAL
CN004
VDD
RV1
REF TRIM
RV2
XP COMPENTION

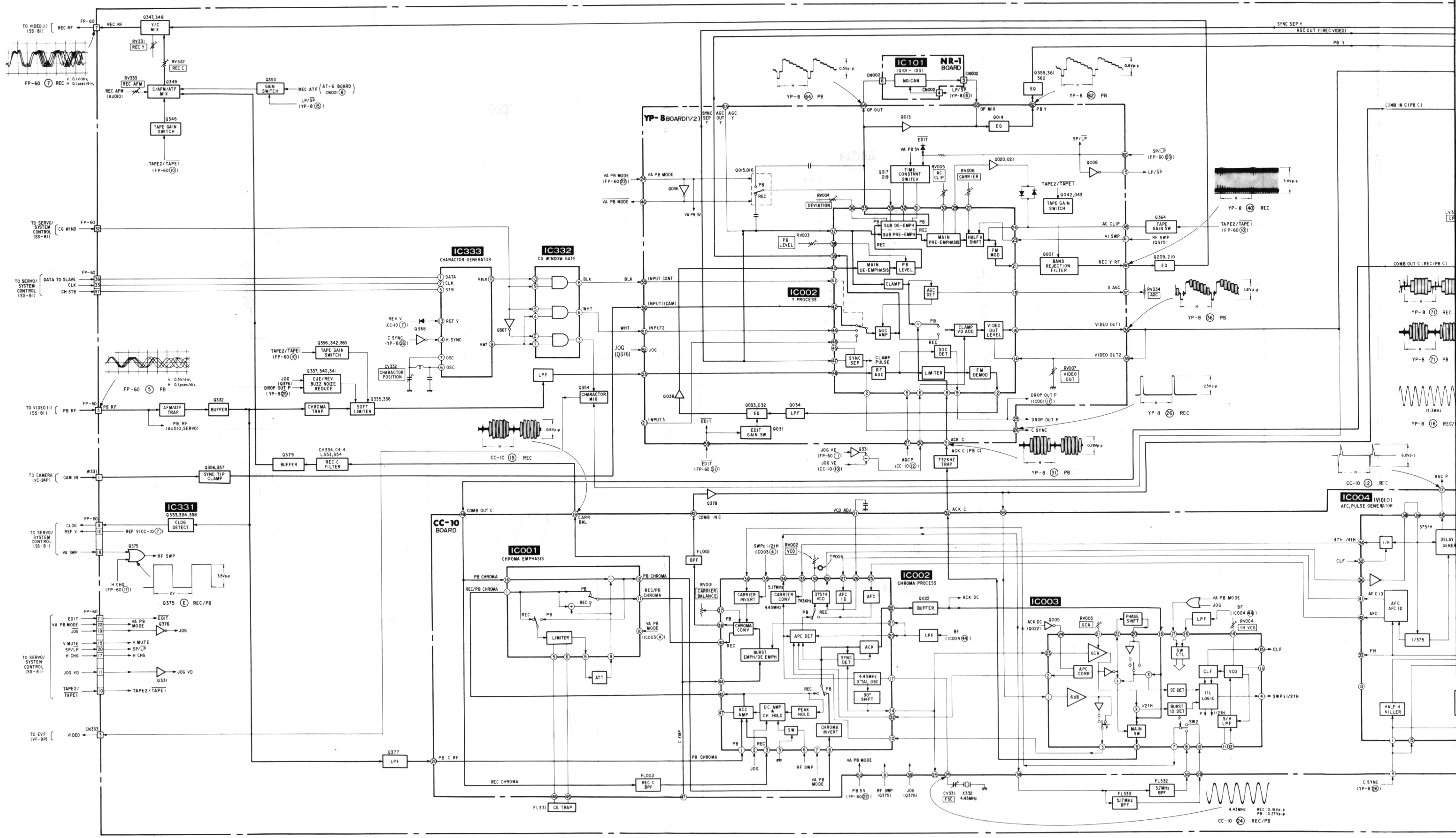

RD
IC001
INTERFACE
4 V IN
22 AGC/V REF
23 ΦT
25 ΦR
28 Φ1
26 Φ3
12 M6
VDD 6
NB 0/MUX1 18
NB 3/MUX4 15
OSC 20
BUS CON 19
REF OUT 3
REF TRIM 2
M5 11
RV1
REF TRIM
VDD
RV2
XP COMPENTION
IC002
AUTO FOCUS CPU
2 P10
5 P13
18 TO
24 INT
39 P20
19 X TAL 1
20 X TAL 2
X1 6MHz
VDD 1
VCC 17
RESET 22
DB0 30
DB3 33
DB6 36
DB7 37
F.FOCUS 15
B.FOCUS 14
AF MTR 11
D-A CONVERTER
RV3
IC003
VDD
16 V REG
5.2V REG
3 +IN
MOTOR CONTROL AMP
FORWARD/ REVERSE SWITCH
10 ΦB
9 ΦC
VCC 1 15
VCC 2 11
MB 8
MC 5
Q1,Q2
VOLTAGE LIMITER
CN002
AF UNREG
CN003
AF MTR (−)
AF MTR (+)
FOCUS MOTOR
M
CN002
F.FOCUS
B.FOCUS
AF ON
SYSTEM CONTROL (SS-81)

3-5. VIDEO(1) BLOCK DIAGRAM

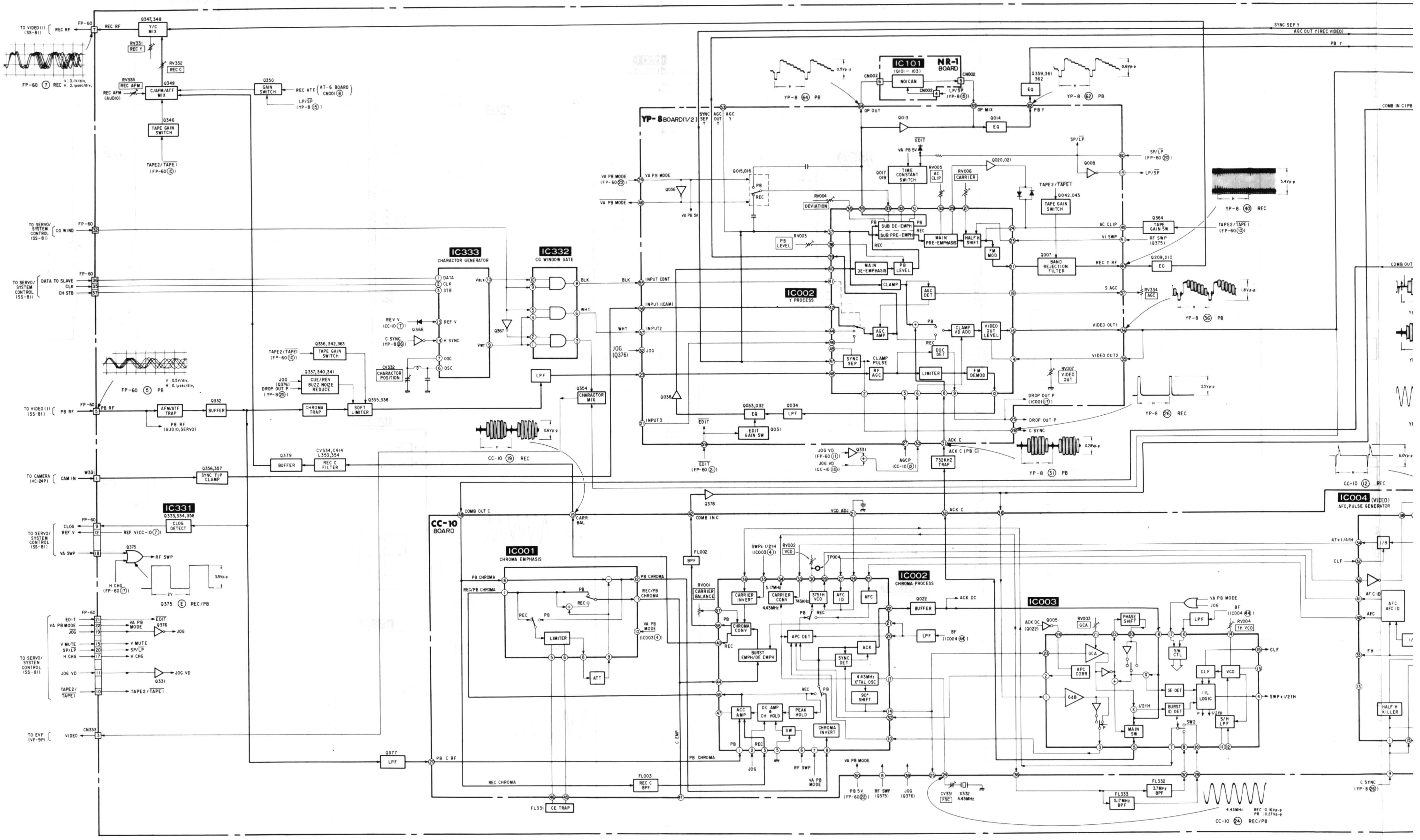

SS-81 BOARD(VIDEO)
RP-47P BOARD
DRUM
VIDEO HEAD CH1
VIDEO HEAD CH1
VIDEO HEAD CH2
FLYING ERASE HEAD
CHECK PIN
CN302
RF SW P
2CH
1CH
1CH
CN301
CH1'(X)
CH1(X)
CH2(X)
FE(X)
IC001
REC/PB AMP
RV001
CH1 PB EQ
RV002
CH2 PB EQ
DUMPING
CH1 HEAD AMP
CH1 2ND AMP
CH2 HEAD AMP
CH2 2ND AMP
BUFFER
AMP
6dB ATT
CH1
CH2
RF CH1
RF CH2
CH1 CHECK
TP301
CH1 CHECK
V-I CONV
CH1 REC AMP
CH2 REC AMP
Y VOL
PCM VOL
CH2 CHECK
TP302
CH2 CHECK
Q302,303
OSC
Q301
ERASE CURRENT SWITCH
Q050
HEAD SHORT SWITCH
Q051,052
CH1 HEAD AMP
Q053 – 055
CH1' 2ND AMP
RV050
CH1' PB EQ
Q056
CH1' Vcc SWITCH
CH1' Vcc
VA 5V
Q057
RF CH1'
Q002,003
RF AMP
H CHG
Q001
RP PB M
RF
RV001
REC Y
REC

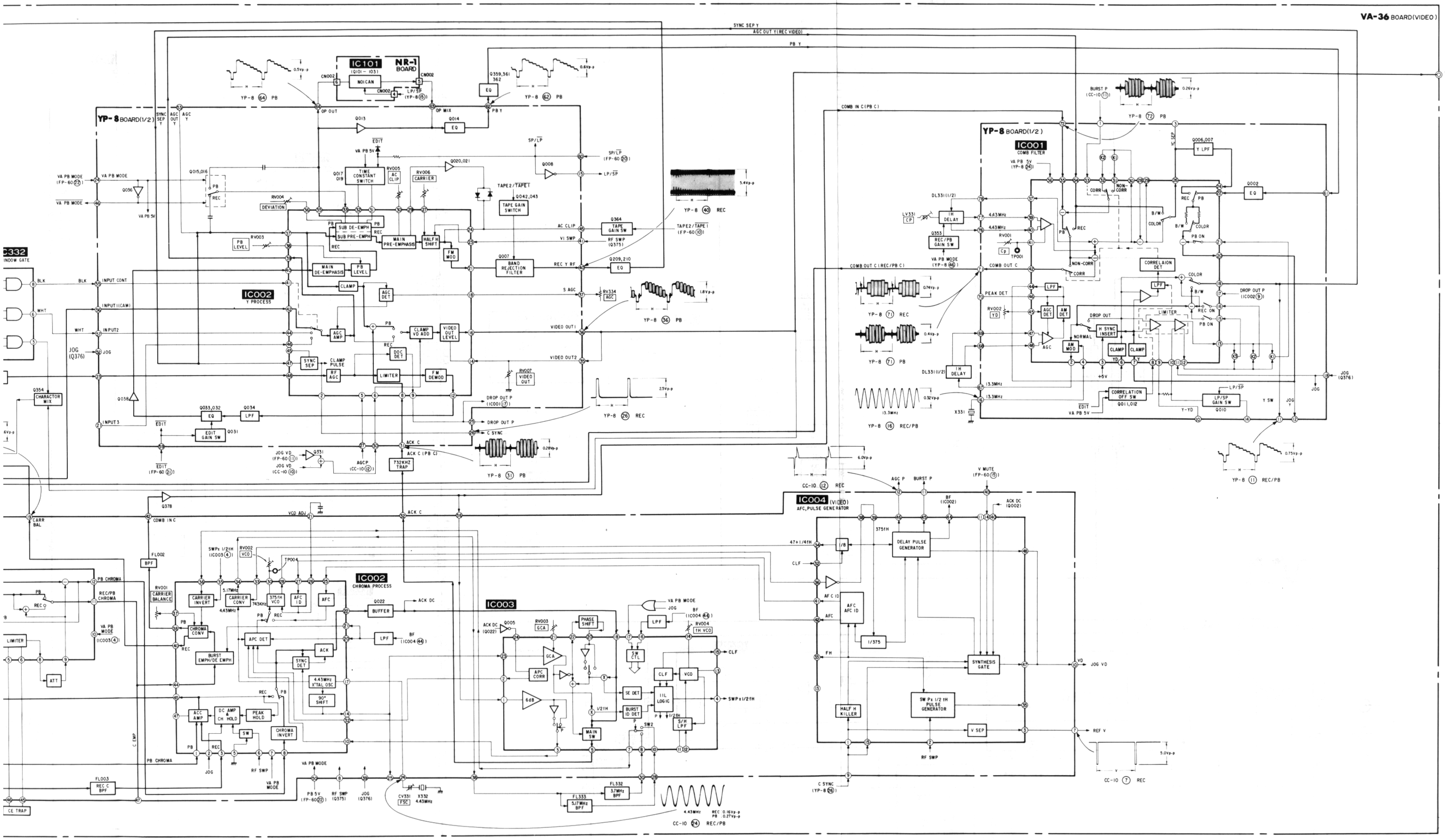

SS-81 BOARD(VIDEO)
RP-47P BOARD
CN302
RF SW P
2CH
1CH
1CH
CHECK PIN
CN301
CH1'(X)
CH1(X)
CH2(X)
RF CH1
RF CH1'
Q050
HEAD SHORT SWITCH
Q051,052
CH1' HEAD AMP
Q053 – 055
CH1' 2ND AMP
Q057
FE ON
RV050
CH1' PB EQ
Q056
CH1' Vcc
CH1' Vcc SWITCH
VA 5V
RV001
CH1 PB EQ
IC001
REC/PB AMP
DUMPING
BUFFER
CH1 HEAD AMP
CH1 2ND AMP
CH1
CH2
AMP
BUFFER
6dB ATT
Q002,003
RF AMP
PB RF
H CHG
CH2 HEAD AMP
CH2 2ND AMP
BUFFER
DUMPING
RV002
CH2 PB EQ
Q001
RP PB MODE
RF CH2
CH1 CHECK
TP301
CH1 CHECK
DUMPING
V-I CONV
RF SWP
RV001
REC Y
REC RF
CH1 REC AMP
BUFFER
Y VOL
CH2 REC AMP
BUFFER
PCM VOL
DUMPING
V-I CONV
CH2 CHECK
TP302
CH2 CHECK
FP-60
PB RF TO AUDIO, SERVO(VA-36)
PB RF(X)
H CHG (IC001 ㊽)
RP PB MODE (IC001 ㊸)
VA SWP (IC001 ⑭)
TO SERVO/SYSTEM CONTROL
TO VIDEO(2)(VA-36)
FP-60
REC RF(X)
REC RF(X)
Q302,303
OSC
Q301
ERASE CURRENT SWITCH
FE ON (IC001 ㊹)
TAPE2/TAPE1 (FP-57 ㉓)
TO SERVO/SYSTEM CONTROL

3-6. VIDEO (2) BLOCK DIAGRAM

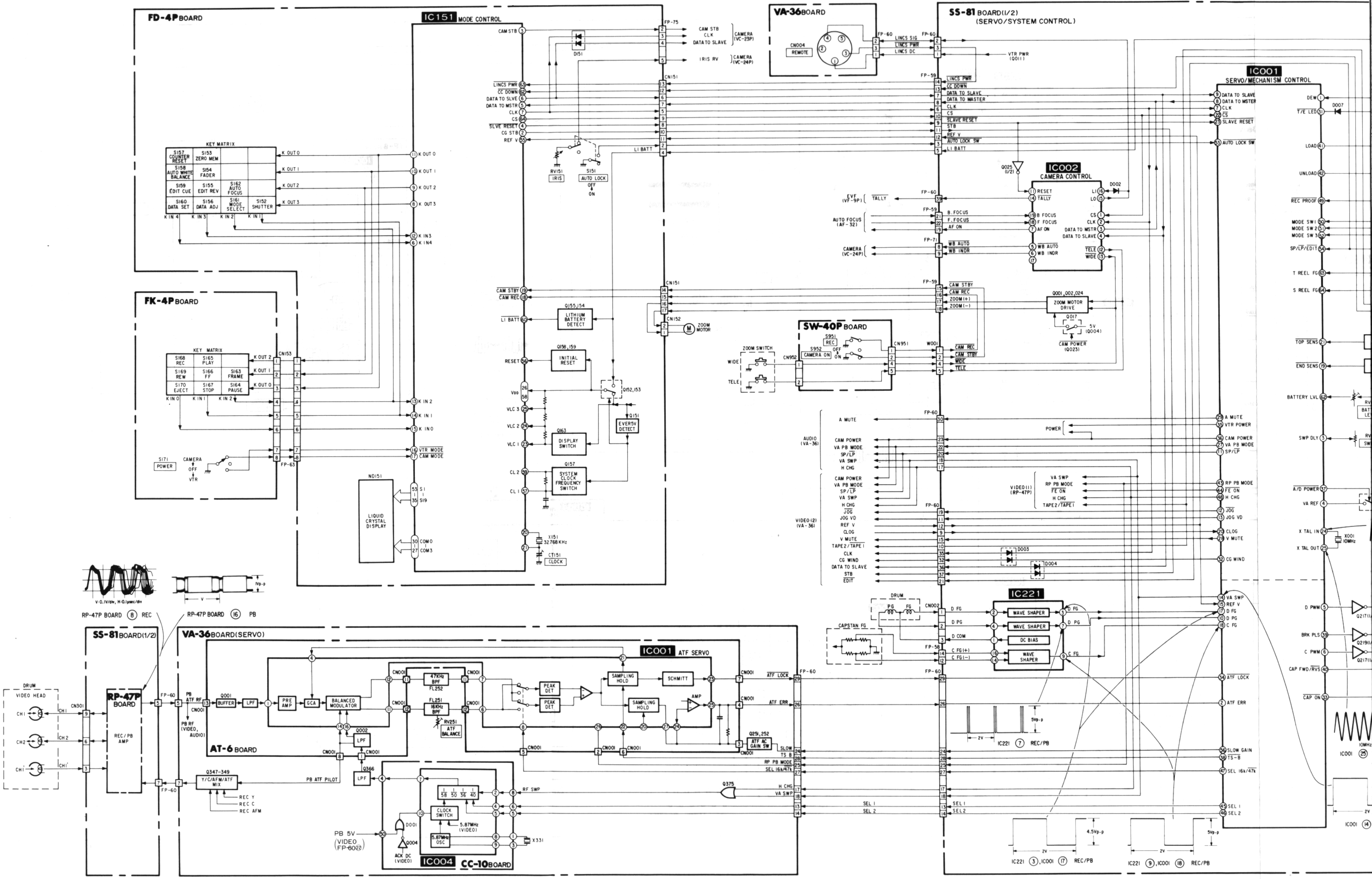

TO VIDEO (1) (SS-81)
REC RF
FP-60
Q347,348 Y/C MIX
RV331 REC Y
RV332 REC C
RV333 REC AFM
REC AFM (AUDIO)
Q349 C/AFM/ATF MIX
Q350 GAIN SWITCH
REC ATF (AT-6 BOARD CN001 ⑧)
LP/SP (YP-8 ⑮)
Q346 TAPE GAIN SWITCH
TAPE2/TAPE1 (FP-60 ⑩)
FP-60 ⑦ REC
TO SERVO/SYSTEM CONTROL (SS-81)
CG WIND
DATA TO SLAVE
CLK
CH STB
IC333 CHARACTOR GENERATOR
IC332 CG WINDOW GATE
REV V (CC-10 ⑦)
Q368
C SYNC (YP-8 ㉖)
TAPE2/TAPE1 (FP-60 ⑩)
Q336,342,363 TAPE GAIN SWITCH
Q337,340,341 CUE/REV BUZZ NOIZE REDUCE
JOG (Q376)
DROP OUT P (YP-8 ㉕)
CV332 CHARACTOR POSITION
FP-60 ⑤ PB
TO VIDEO (1) (SS-81) PB RF
AFM/ATF TRAP
PB RF (AUDIO,SERVO)
Q332 BUFFER
CHROMA TRAP
Q335,338 SOFT LIMITER
LPF
Q354 CHARACTOR MIX
Q379 BUFFER
CV334,C414 L353,354 REC C FILTER
CC-10 ⑲ REC
TO CAMERA (VC-24P) CAM IN
W331
Q356,357 SYNC TIP CLAMP
IC331 Q333,334,358 CLOG DETECT
CLOG
REF V
REF V (CC-10 ⑦)
VA SWP
Q375 RF SWP
H CHG (FP-60 ⑰)
Q375 Ⓔ REC/PB
EDIT
VA PB MODE
JOG
V MUTE
SP/LP
H CHG
JOG VD
Q331
TAPE2/TAPE1
TO EVF (VF-9P) VIDEO
CN333
Q377 LPF
PB C RF
YP-8 BOARD (1/2)
VA PB MODE (FP-60 ㉒)
Q036
IC101 NR-1 BOARD (Q101~103)
NOICAN
LP/SP (YP-8 ⑮)
YP-8 ㊿ PB
YP-8 ㊶ PB
OP OUT
OP MIX
Q013
Q014 EQ
Q359,361 362 EQ
PB Y
Q015,016
Q017 Q019 TIME CONSTANT SWITCH
RV005 AC CLIP
RV006 CARRIER
Q020,021
Q008
SP/LP (FP-60 ㉓)
LP/SP
TAPE2/TAPE1
Q042,043 TAPE GAIN SWITCH
RV004 DEVIATION
SUB DE-EMPH
SUB PRE-EMPH
MAIN PRE-EMPHASIS
HALF H SHIFT
FM MOD
RV003 PB LEVEL
MAIN DE-EMPHASIS
PB LEVEL
Q007 BAND REJECTION FILTER
Q364 TAPE GAIN SW
TAPE2/TAPE1 (FP-60 ⑩)
RF SWP (Q375)
Q209,210 EQ
REC Y RF
YP-8 ㊵ REC
IC002 Y PROCESS
CLAMP
AGC DET
AGC AMP
CLAMP VD ADD
VIDEO OUT LEVEL
RV334 AGC
YP-8 ㊱ PB
VIDEO OUT1
VIDEO OUT2
SYNC SEP
CLAMP PULSE
DOC DET
RF AGC
LIMITER
FM DEMOD
RV007 VIDEO OUT
DROP OUT P (CC001 ⑰)
YP-8 ㉖ REC
JOG (Q376)
Q038
Q033,032 EQ
Q034 LPF
EDIT GAIN SW
Q031
EDIT (FP-60 ㉑)
JOG VD (FP-60 ⑪)
JOG VD (CC-10 ⑯)
AGCP (CC-10 ⑫)
ACK C
ACK C (PB C)
732KHZ TRAP
YP-8 ㉛ PB
SYNC SEP Y
AGC OUT Y (REC VIDEO)
PB Y
COMB IN C (PB C)
COMB OUT C (REC/PB C)
YP-8 ⑦ REC
YP-8 ⑦ PB
YP-8 ⑯ REC
CC-10 ⑫ REC
CC-10 BOARD
COMB OUT C
CARR BAL
COMB IN C
Q378
IC001 CHROMA EMPHASIS
PB CHROMA
REC/PB CHROMA
LIMITER
ATT
VA PB MODE (IC003 ④)
FL331 CE TRAP
FL003 REC C BPF
REC CHROMA
FL002 BPF
RV001 CARRIER BALANCE
CARRIER INVERT
CARRIER CONV
375fH VCO
AFC ID
AFC
RV002 VCO
TP004
IC002 CHROMA PROCESS
Q022 BUFFER
ACK DC
CHROMA CONV
APC DET
BURST EMPH/DE EMPH
SYNC DET
ACK
4.43MHz X'TAL OSC
90° SHIFT
LPF
BF (IC004 ㊹)
ACC AMP
DC AMP & CH HOLD
PEAK HOLD
SW
CHROMA INVERT
VA PB MODE
PB 5V (FP-60 ㉒)
RF SWP (Q375)
JOG (Q376)
CV331 FSC
X331 4.43MHz
FL333 5.17MHz BPF
FL332 3.7MHz BPF
CC-10 ㉔ REC/PB
IC003
Q005 ACK DC (Q022)
RV003 GCA
PHASE SHIFT
GCA
APC CORR
64B
MAIN SW
SE DET
BURST ID DET
1/2 FH
IIL LOGIC
CLF
VCO
S/H LPF
RV004 FH VCO
SWP x 1/2 FH
IC004 (VIDEO) AFC, PULSE GENERATOR
DELAY GENER
1/8
AFC ID
AFC
1/375
HALF H KILLER
C SYNC (YP-8 ㉖)

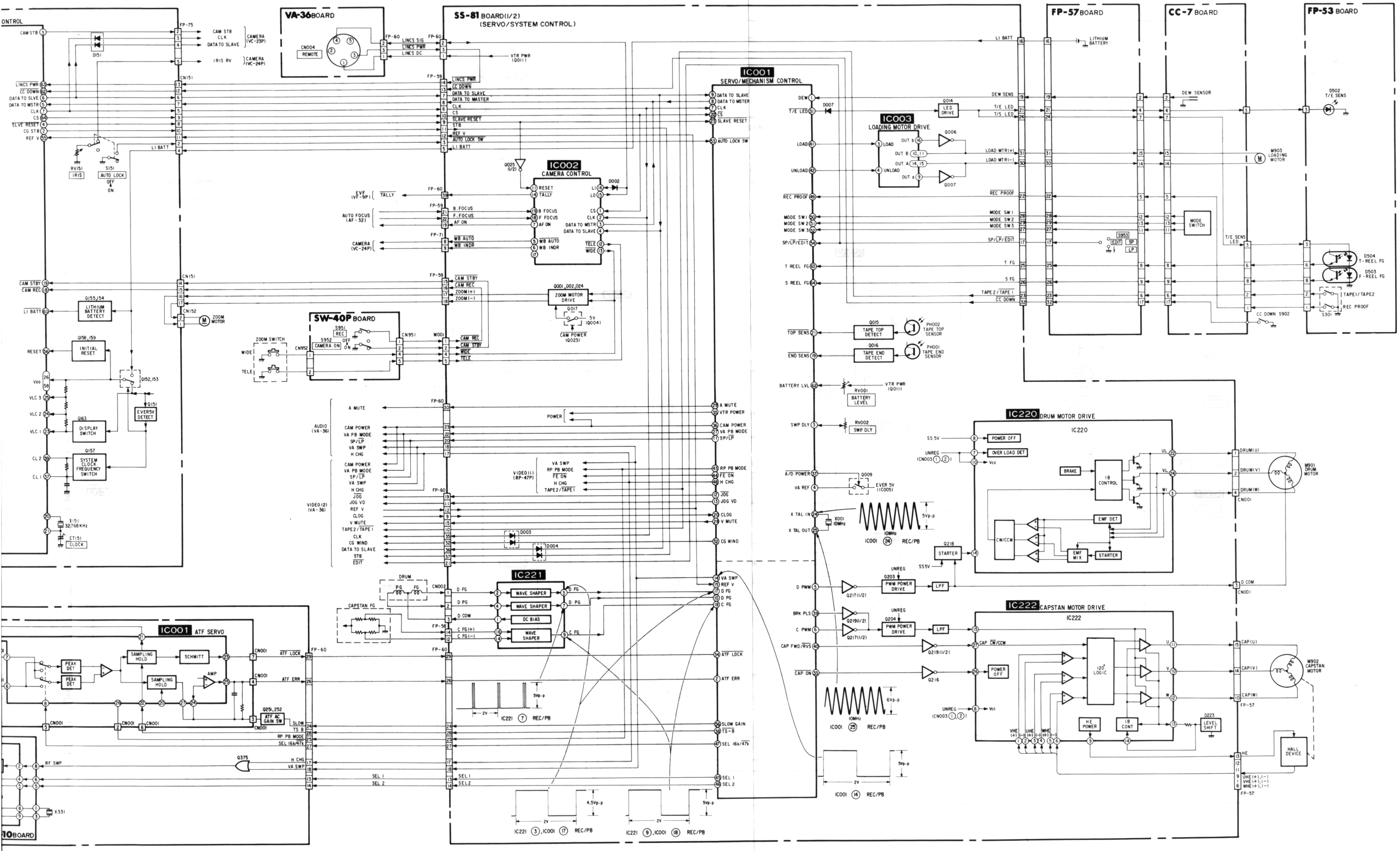
3-6. VIDEO (2) BLOCK DIAGRAM


TO VIDEO(1) (SS-81)
REC RF
FP-60
Q347,348 Y/C MIX
RV331 REC Y
RV332 REC C
RV333 REC AFM
REC AFM (AUDIO)
Q349 C/AFM/ATF MIX
Q350 GAIN SWITCH
REC ATF (AT-6 BOARD CN001 ⑧)
LP/SP (YP-8 ⑮)
Q346 TAPE GAIN SWITCH
TAPE2/TAPE1 (FP-60 ⑩)
FP-60 ⑦ REC
TO SERVO/SYSTEM CONTROL (SS-81)
CG WIND
DATA TO SLAVE
CLK
CH STB
IC333 CHARACTOR GENERATOR
DATA
CLK
STB
REF V
H SYNC
OSC
VBLK
VWT
CV332 CHARACTOR POSITION
REV V (CC-10 ⑦)
Q368
C SYNC (YP-8 ㉖)
IC332 CG WINDOW GATE
Q367
BLK
WHT
Q336,342,363 TAPE GAIN SWITCH
Q337,340,341 CUE/REV BUZZ NOIZE REDUCE
JOG (Q376)
DROP OUT P (YP-8 ㉕)
CHROMA TRAP
SOFT LIMITER
Q335,338
LPF
Q354 CHARACTOR MIX
FP-60 ⑤ PB
TO VIDEO(1) (SS-81) PB RF
AFM/ATF TRAP
Q332 BUFFER
PB RF (AUDIO, SERVO)
Q379 BUFFER
CV334, C414 L353,354 REC C FILTER
CC-10 ⑲ REC
TO CAMERA (VC-24P) CAM IN
W331
Q356,357 SYNC TIP CLAMP
IC331 Q333,334,358 CLOG DETECT
CLOG
REF V
REF V (CC-10 ⑦)
VA SWP
Q375
RF SWP
H CHG (FP-60 ⑰)
Q375 Ⓔ REC/PB
EDIT
VA PB MODE
JOG
Q376
V MUTE
SP/LP
H CHG
JOG VD
Q331
TAPE2/TAPE1
TO EVF (VF-9P) VIDEO
CN333
Q377 LPF
PB C RF
YP-8 BOARD (1/2)
SYNC SEP
AGC OUT Y
AGC Y
VA PB MODE (FP-60 ㉒)
Q036
Q015,016
RV004 DEVIATION
RV003 PB LEVEL
INPUT CONT
INPUT1 (CAM)
INPUT2
JOG (Q376)
INPUT3
IC002 Y PROCESS
IC101 (Q101-103) NOICAN
NR-1 BOARD
CN002
CN001
LP/SP (YP-8 ⑮)
YP-8 ㊹ PB
OP OUT
OP MIX
Q013
Q014 EQ
Q359,361,362 EQ
YP-8 ㊷ PB
PB Y
EDIT
VA PB 5V
Q017,019 TIME CONSTANT SWITCH
RV005 AC CLIP
RV006 CARRIER
Q020,021
SUB DE-EMPH
SUB PRE-EMPH
MAIN PRE-EMPHASIS
HALF H SHIFT
FM MOD
MAIN DE-EMPHASIS
PB LEVEL
CLAMP
AGC DET
AGC AMP
CLAMP VD ADD
VIDEO OUT LEVEL
DOC DET
SYNC SEP
CLAMP PULSE
RF AGC
LIMITER
FM DEMOD
SP/LP
Q008
SP/LP (FP-60 ⑳)
LP/SP
TAPE2/TAPE1
Q042,043 TAPE GAIN SWITCH
AC CLIP
VI SWP
Q364 TAPE GAIN SW
TAPE2/TAPE1 (FP-60 ⑩)
RF SWP (Q375)
Q007 BAND REJECTION FILTER
REC Y RF
Q209,210 EQ
S AGC
RV334 AGC
YP-8 ㊵ REC
YP-8 ㊱ PB
VIDEO OUT1
VIDEO OUT2
RV007 VIDEO OUT
DROP OUT P (IC001 ⑰)
DROP OUT P
C SYNC
YP-8 ㉖ REC
Q038
Q033,032 EQ
Q034 LPF
EDIT GAIN SW Q031
EDIT (FP-60 ㉑)
JOG VD (FP-60 ⑪)
JOG VD (CC-10 ⑩)
Q331
AGCP (CC-10 ⑫)
ACK C
ACK C (PB C)
732KHZ TRAP
YP-8 ㉛ PB
SYNC SEP Y
AGC OUT Y (REC VIDEO)
PB Y
COMB IN C (PB)
COMB OUT
CC-10 BOARD
COMB OUT C
CARR BAL
Q378
COMB IN C
VCO ADJ
ACK C
IC001 CHROMA EMPHASIS
PB CHROMA
REC/PB CHROMA
LIMITER
ATT
VA PB MODE (IC003 ④)
FL002 BPF
RV001 CARRIER BALANCE
SWP1 1/2H (IC003 ⑥)
RV002 VCO
TP004
IC002 CHROMA PROCESS
CARRIER INVERT
CARRIER CONV
5.17MHz
4.43MHz
743KHz
375fH VCO
AFC ID
AFC
CHROMA CONV
BURST EMPH/DE EMPH
APC DET
ACK
SYNC DET
4.43MHz X'TAL OSC
90° SHIFT
Q022 BUFFER
ACK DC
LPF
BF (IC004 ㊹)
ACC AMP
DC AMP CH HOLD
PEAK HOLD
SW
CHROMA INVERT
C EMP
RF SWP
VA PB MODE
PB CHROMA
REC CHROMA
FL003 REC C BPF
FL331 CE TRAP
PB 5V (FP-60 ㉒)
RF SWP (Q375)
JOG (Q376)
CV331 FSC
X332 4.43MHz
FL332 3.7MHz BPF
FL333 5.17MHz BPF
4.43MHz REC 0.16Vp-p PB 0.27Vp-p
CC-10 ㉔ REC/PB
IC003
ACK DC (Q022)
Q005
RV003 GCA
PHASE SHIFT
GCA
APC CORR
6dB
1/2fH
MAIN SW
SE DET
BURST ID DET
IIL LOGIC
SW CTL
CLF
VCO
S/H LPF
SW2
VA PB MODE
JOG
BF (IC004 ㊹)
RV004 fH VCO
CLF
SWP1/2H
IC004 (VIDEO) AFC, PULSE GENERATOR
47+1/41H
1/8
AFC
AF CLK
AFC AFC ID
FH
HALF H KILLER
C SYNC (YP-8 ㉖)
CC-10 ⑫ REC


VA-36 BOARD(VIDEO)
YP-8 BOARD(1/2)
IC101 NR-1 BOARD
(Q101 - 103)
NOICAN
LP/SP (YP-8 ⑮)
OP OUT
OP MIX
PB Y
SYNC SEP Y
AGC OUT Y(REC VIDEO)
IC002 Y PROCESS
TIME CONSTANT SWITCH
AC CLIP
CARRIER
DEVIATION
SUB DE-EMPH
SUB PRE-EMPH
MAIN PRE-EMPHASIS
HALF H SHIFT
FM MOD
MAIN DE-EMPHASIS
PB LEVEL
CLAMP
AGC DET
AGC AMP
CLAMP VD ADD
VIDEO OUT LEVEL
DOC DET
SYNC SEP
CLAMP PULSE
RF AGC
LIMITER
FM DEMOD
BAND REJECTION FILTER
TAPE GAIN SWITCH
TAPE GAIN SW
EQ
VIDEO OUT1
VIDEO OUT2
VIDEO OUT
DROP OUT P (IC001 ⑰)
DROP OUT P
C SYNC
ACK C
ACK C (PB C)
732KHZ TRAP
CHARACTOR MIX
EDIT GAIN SW
LPF
INPUT CONT
INPUT1(CAM)
INPUT2
INPUT3
BLK
WHT
JOG (Q376)
VA PB MODE (FP-60 ㉒)
VA PB MODE
SP/LP (FP-60 ⑳)
TAPE2/TAPE1 (FP-60 ⑩)
RF SWP (Q375)
REC Y RF
S AGC
JOG VD (FP-60 ⑪)
JOG VD (CC-10 ⑩)
AGCP (CC-10 ⑫)
EDIT (FP-60 ㉑)
YP-8 64 PB
YP-8 62 PB
YP-8 40 REC
YP-8 36 PB
YP-8 26 REC
YP-8 31 PB
0.5Vp-p
0.6Vp-p
5.4Vp-p
1.8Vp-p
2.5Vp-p
0.28Vp-p
C332
WINDOW GATE
CARR BAL
COMB IN C
IC002 CHROMA PROCESS
CARRIER BALANCE
CARRIER INVERT
CARRIER CONV
375fH VCO
AFC ID
AFC
CHROMA CONV
APC DET
ACK
BURST EMPH/DE EMPH
SYNC DET
4.43MHz X'TAL OSC
90° SHIFT
ACC AMP
DC AMP & CH HOLD
PEAK HOLD
SW
CHROMA INVERT
BUFFER
ACK DC
BF (IC004 ㊹)
PB CHROMA
REC/PB CHROMA
VA PB MODE (IC003 ④)
LIMITER
ATT
REC C BPF
CE TRAP
VCO ADJ
SWP x 1/2 fH (IC003 ④)
5.17MHz
4.43MHz
743KHz
IC003
ACK DC (Q022)
GCA
PHASE SHIFT
APC CORR
6dB
MAIN SW
SE DET
BURST ID DET
SW CTL
LPF
1H VCO
CLF
VCO
IIL LOGIC
S/H LPF
SWP x 1/2fH
VA PB MODE
JOG
BF (IC004 ㊹)
PB 5V (FP-60 ㉒)
RF SWP (Q375)
JOG (Q376)
FSC
X332 4.43MHz
CV331
3.7MHz BPF
5.17MHz BPF
CC-10 24 REC/PB
REC 0.16Vp-p
PB 0.27Vp-p
CN332 (1/3) VIDEO OUT
COMB IN C(PB C)
BURST P (CC-10 ⑪)
YP-8 72 PB
0.26Vp-p
YP-8 BOARD(1/2)
IC001 COMB FILTER
VA PB 5V (YP-8 ㉔)
Q006,007 Y LPF
Q002 EQ
NON-CORR
CORR
B/W
COLOR
PB ON
DL331(1/2)
1H DELAY
LV331 CP
4.43MHz
REC/PB GAIN SW
VA PB MODE (YP-8 ㊻)
TP001
COMB OUT C(REC/PB C)
COMB OUT C
CORRELATION DET
PEAK DET
AGC DET
AM DET
H SYNC INSERT
DROP OUT
NORMAL
AM MOD
CLAMP
LIMITER
REC ON
PB ON
DROP OUT P (IC002 ⑨)
DL331(1/2)
13.3MHz
X331
CORRELATION OFF SW
Q011,012
EDIT
VA PB 5V
LP/SP GAIN SW
Q010
Y SW
JOG Y
JOG (Q376)
YP-8 71 REC
YP-8 71 PB
0.74Vp-p
0.4Vp-p
0.32Vp-p
YP-8 16 REC/PB
YP-8 11 REC/PB
0.75Vp-p
6.0Vp-p
CC-10 12 REC
AGC P
BURST P
V MUTE (FP-60 ⑮)
IC004 (VIDEO) AFC,PULSE GENERATOR
BF (IC002)
ACK DC (Q002)
375fH
4fH+1/4fH
1/8
CLF
DELAY PULSE GENERATOR
AFC ID
AFC
AFC AFC ID
1/375
FH
SYNTHESIS GATE
VD
JOG VD
HALF H KILLER
SW Px 1/2 fH PULSE GENERATOR
V SEP
REF V
RF SWP
C SYNC (YP-8 ㉖)
5.0Vp-p
CC-10 7 REC

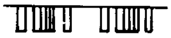
3-7. SERVO, SYSTEM CONTROL BLOCK DIAGRAM


FD-4P BOARD
IC151 MODE CONTROL
KEY MATRIX
S157 COUNTER RESET
S153 ZERO MEM
S158 AUTO WHITE BALANCE
S154 FADER
S159 EDIT CUE
S155 EDIT REV
S162 AUTO FOCUS
S160 DATA SET
S156 DATA ADJ
S161 MODE SELECT
S152 SHUTTER
K OUT 0
K OUT 1
K OUT 2
K OUT 3
K IN 3
K IN 4
CAM STB
LINCS PWR
CC DOWN
DATA TO SLVE
DATA TO MSTR
CLK
CS
SLVE RESET
CG STB
REF V
D151
RV151 IRIS
S151 AUTO LOCK
OFF
ON
LI BATT
FP-75
CAM STB
CLK
DATA TO SLAVE
CAMERA (VC-23P)
IRIS RV
CAMERA (VC-24P)
CN151
FK-4P BOARD
KEY MATRIX
S168 REC
S165 PLAY
S169 REW
S166 FF
S163 FRAME
S170 EJECT
S167 STOP
S164 PAUSE
K IN 0
K IN 1
K IN 2
CN153
FP-63
S171 POWER
CAMERA
OFF
VTR
VTR MODE
CAM MODE
CAM STBY
CAM REC
LI BATT
Q155,154 LITHIUM BATTERY DETECT
Q158,159 INITIAL RESET
RESET
VDD
VLC 3
VLC 2
VLC 1
Q163 DISPLAY SWITCH
Q152,153
Q151 EVER5V DETECT
Q157 SYSTEM CLOCK FREQUENCY SWITCH
CL 2
CL 1
ND151 LIQUID CRYSTAL DISPLAY
S1
S19
COM0
COM3
X151 32.768KHz
CT151 CLOCK
CN152
ZOOM MOTOR
VA-36 BOARD
CN004 REMOTE
FP-60
LINCS SIG
LINCS PWR
LINCS DC
SS-81 BOARD (1/2) (SERVO/SYSTEM CONTROL)
VTR PWR (Q011)
FP-59
LINCS PWR
CC DOWN
DATA TO SLAVE
DATA TO MASTER
CLK
CS
SLAVE RESET
STB
REF V
AUTO LOCK SW
LI BATT
Q025 (1/2)
IC002 CAMERA CONTROL
RESET
TALLY
D002
EVF (VF-9P)
TALLY
AUTO FOCUS (AF-32)
B.FOCUS
F.FOCUS
AF ON
DATA TO MSTR
DATA TO SLAVE
CAMERA (VC-24P)
FP-71
WB AUTO
WB INDR
TELE
WIDE
CAM STBY
CAM REC
ZOOM(+)
ZOOM(-)
Q001,002,024 ZOOM MOTOR DRIVE
Q017
5V (Q004)
CAM POWER (Q023)
SW-40P BOARD
S951 REC
S952 CAMERA ON
OFF
ON
CN951
CN952
ZOOM SWITCH
WIDE
TELE
W001
IC001 SERVO/MECHANISM CONTROL
DATA TO SLAVE
DATA TO MSTER
CLK
CS
SLAVE RESET
AUTO LOCK SW
DEW
T/E LED
D007
LOAD
UNLOAD
REC PROOF
MODE SW1
MODE SW2
MODE SW3
SP/LP/EDIT
T REEL FG
S REEL FG
TOP SENS
END SENS
BATTERY LVL
SWP DLY
A/D POWER
VA REF
X TAL IN
X TAL OUT
X001 10MHz
AUDIO (VA-36)
A MUTE
CAM POWER
VA PB MODE
SP/LP
VA SWP
H CHG
POWER
VTR POWER
VIDEO (2) (VA-36)
JOG
JOG VD
REF V
CLOG
V MUTE
TAPE2/TAPE1
CG WIND
DATA TO SLAVE
STB
EDIT
VIDEO (1) (RP-47P)
RP PB MODE
FE ON
TAPE 2/TAPE 1
D003
D004
DRUM
PG
FG
CN002
CAPSTAN FG
IC221
WAVE SHAPER
DC BIAS
D FG
D PG
D COM
C FG(+)
C FG(-)
FP-58
C FG
D PWM
BRK PLS
C PWM
CAP FWD/RVS
CAP ON
Q217(1/2)
Q219(1/2)
ATF LOCK
ATF ERR
SLOW GAIN
TS-B
SEL 16k/47k
SEL 1
SEL 2
5Vp-p
2V
IC221 ⑦ REC/PB
4.5Vp-p
IC221 ③, IC001 ⑰ REC/PB
IC221 ⑨, IC001 ⑱ REC/PB
IC001 ㉕
IC001 ⑭
10MHz
V: 0.1V/div, H: 0.1μsec/div
1Vp-p
RP-47P BOARD ⑧ REC
RP-47P BOARD ⑯ PB
DRUM
VIDEO HEAD
CH1
CH2
CH1'
CN301
SS-81 BOARD (1/2)
RP-47P BOARD
REC/PB AMP
FP-60
VA-36 BOARD (SERVO)
IC001 ATF SERVO
PB ATF RF
CN001
Q001 BUFFER
LPF
PRE AMP
GCA
BALANCED MODULATOR
47KHz BPF FL252
FL251 16KHz BPF
RV251 ATF BALANCE
PEAK DET
SAMPLING HOLD
SCHMITT
AMP
Q002 LPF
PB RF (VIDEO, AUDIO)
AT-6 BOARD
Q251,252 ATF AC GAIN SW
ATF LOCK
ATF ERR
SLOW
TS B
RP PB MODE
SEL 16k/47k
Q347-349 Y/C/AFM/ATF MIX
REC Y
REC C
REC AFM
PB ATF PILOT
Q366 LPF
RF SWP
Q375
H CHG
VA SWP
SEL 1
SEL 2
CLOCK SWITCH
5.87MHz (VIDEO)
5.87MHz OSC
X331
D001
Q004
ACK DC (VIDEO)
PB 5V
(VIDEO FP-60②)
IC004 CC-10 BOARD



VA-36 BOARD
SS-81 BOARD (1/2)
(SERVO/SYSTEM CONTROL)
FP-57 BOARD
CC-7 BOARD
FP-53 BOARD
IC001
SERVO/MECHANISM CONTROL
IC002
CAMERA CONTROL
IC003
LOADING MOTOR DRIVE
SW-40P BOARD
IC220 DRUM MOTOR DRIVE
IC222 CAPSTAN MOTOR DRIVE
IC221
IC001 ATF SERVO
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
M903 LOADING MOTOR
LITHIUM BATTERY
DEW SENSOR
MODE SWITCH
TAPE TOP DETECT
TAPE END DETECT
ZOOM MOTOR DRIVE
ZOOM MOTOR
WAVE SHAPER
DC BIAS
PWM POWER DRIVE
LPF
HALL DEVICE
STARTER
EMF DET
EMF MIX
CW/CCW
BRAKE
18 CONTROL
120° LOGIC
HE POWER
18 CONT
LEVEL SHIFT
POWER OFF
OVER LOAD DET
SAMPLING HOLD
SCHMITT
PEAK DET
AMP
ATF AC GAIN SW
SYSTEM CLOCK FREQUENCY SWITCH
DISPLAY SWITCH
INITIAL RESET
LITHIUM BATTERY DETECT
EVER5V DETECT
IC001 ㉔ REC/PB
IC001 ㉕ REC/PB
IC001 ⑭ REC/PB
IC221 ⑦ REC/PB
IC221 ③, IC001 ⑰ REC/PB
IC221 ⑨, IC001 ⑱ REC/PB
10BOARD

3-8. SYSTEM CONTROL—CAMERA BLOCK INTERFACE

<table>
<tr><th>Signal</th><th>I/O</th><th>Pin No.</th><th>Input/Output Level</th></tr>
<tr><td>$\overline{\text{WB AUTO}}$</td><td>O</td><td>SS-81board IC002⑤</td><td rowspan="2">Changes as follows according to auto white balance button (FD-4P board S158).
<table><tr><th>EVF display</th><th>(AUTO)</th><th>OUT DOOR</th><th>IN DOOR</th></tr><tr><td>$\overline{\text{WB AUTO}}$</td><td>L</td><td>H</td><td>H</td></tr><tr><td>$\overline{\text{WB INDR}}$</td><td>H</td><td>H</td><td>L</td></tr></table></td></tr>
<tr><td>$\overline{\text{WB INDR}}$</td><td>O</td><td>SS-81board IC002⑥</td></tr>
<tr><td>AF ON</td><td>O</td><td>SS-81board IC002⑦</td><td>"H" when auto focus is ON.</td></tr>
<tr><td>$\overline{\text{TELE}}$</td><td>O</td><td>SS-81board IC002⑫</td><td>"L" when zoom switch TELE of Remote Commander is pressed.</td></tr>
<tr><td>$\overline{\text{WIDE}}$</td><td>O</td><td>SS-81board IC002⑬</td><td>"L" when zoom switch WIDE of Remote Commander is pressed.</td></tr>
<tr><td>$\overline{\text{TALLY}}$</td><td>O</td><td>SS-81board IC002⑭</td><td>"L" when in CAMERA mode and REC mode.</td></tr>
<tr><td>F FOCUS</td><td>I</td><td>SS-81board IC002⑱</td><td rowspan="2">Changes as follows according to results.
<table><tr><th></th><th>Focus too close</th><th>Just focus</th><th>Focus too far</th><th>Impossible to measure</th></tr><tr><td>F FOCUS</td><td>L</td><td>L</td><td>H</td><td>H</td></tr><tr><td>B FOCUS</td><td>H</td><td>L</td><td>L</td><td>H</td></tr></table></td></tr>
<tr><td>B FOCUS</td><td>I</td><td>SS-81board IC002⑲</td></tr>
<tr><td>CAM STB</td><td>O</td><td>FD-4P board IC151③</td><td>4V cycle "H" pulse. ( )
Strobe signal for serial data transmission.</td></tr>
<tr><td>CLK</td><td>O</td><td>FD-4P board IC151⑦</td><td>2V cycle "L" Pulse series.
() Serial data transmission clock.</td></tr>
<tr><td>DATA TO SLAVE</td><td>O</td><td>FD-4P board IC151⑥</td><td>2V cycle pulse series. ( )
Serial data transmission.</td></tr>
</table>

3-9. SYSTEM CONTROL—VIDEO, AUDIO BLOCK INTERFACE

Signal	I/O	Pin No.	VTR mode										CAMERA mode			
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB•PAUSE	FRAME	STAND-BY	EDIT CUE	EDIT REVIEW	REC
						CUE	REVIEW		CUE	REVIEW						
SP/$\overline{\text{LP}}$	O	SS-81board IC001⑪	∗11	∗11	∗11	∗ 1	∗ 1	∗ 2	∗ 1	∗ 1	∗ 1	∗ 1	∗11	∗11	∗11	∗11
$\overline{\text{JOG}}$	O	SS-81board IC001⑫	H	H	H	L	L	H	L	L	L	L	H	L	L	H
JOG VD	O	SS-81board IC001⑬	L	L	L	∗ 3	∗ 3	L	∗ 3	∗ 3	∗ 3	∗ 3	L	∗ 3	∗ 3	L
RF SWP	O	SS-81board IC001⑭	H/L	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4
REF V	O	SS-81board IC001⑮	∗ 5	∗ 5	∗ 5	L	L	L	L	L	L	L	∗ 5	L	L	∗ 5
CLOG	I	SS-81board IC001⑳	H	∗ 6	∗ 6	∗ 6	∗ 6	∗ 6	∗ 6	∗ 6	∗ 6	∗ 6		∗ 6	∗ 6	H
VA PB MODE	O	SS-81board IC001㉗	L	L	L	H	H	H	H	H	H	H	L	H	H	L
V MUTE	O	SS-81board IC001㉘	L	L	L	L	L	L ∗ 7	L	L	L	L	L	L	L	L
A MUTE	O	SS-81board IC001㉙	L	L	L	H	H	L ∗ 7	H	H	H	H	L	H	H	L
CG WIND	O	SS-81board IC001㉜	H	H	H	H	H	H	H	H	H	H	∗ 8	∗ 8	∗ 8	∗ 8
CAM PWR	O	SS-81board IC001㊱	L	L	L	L	L	L	L	L	L	L	H	H	H	H
H CHG	O	SS-81board IC001㊽	L	L	L	L	L	L	L	L	∗ 9	∗ 9	L	L	L	L
RP PB MODE	O	SS-81board IC001㊸	H	H	H	H	H	H	H	H	H	H	H	H	H	L
$\overline{\text{FE ON}}$	O	SS-81board IC001㊹	H	H	H	H	H	H	H	H	H	H	H	H	H	L
TAPE2/$\overline{\text{TAPE1}}$	O	FP-53board S301	"L" when using MP type tape.													
$\overline{\text{EDIT}}$	O	FP-57board S953	"L" when EDIT switch (FP-57 board S953) is turuned ON.													
DATA TO SLAVE	O	FD-4P board IC151 ⑥	V cycle "L" pulse series (VTR mode)										"L" pulse series (CAMERA mode)			
CLK	O	FD-4P board IC151 ⑦	V cycle "L" pulse series (VTR mode)										"L" pulse series (CAMERA mode)			
CG STB	O	FD-4P board IC151 ②	L	L	L	L	L	L	L	L	L	L	∗ 10	∗ 10	∗ 10	∗ 10

∗ 1 Outputs identification results is PB mode immediately preceding. SP mode "H", LP mode "L".

∗ 2 Outputs identification results of playback tape recording mode (SP/LP). SP mode "H", LP mode "L".

∗ 3 False VD signal (V cylce "H" pulse)

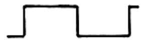
∗ 4 25Hz 50% duty pulse. Synchronized to drum rotation.

∗ 5 V cycle "L" pulse separated from camera video signal.

∗ 6 "H" at tape no signal portion or dropout portion. Input for head clogging detection.

∗ 7 "H" at tape no signal portion.

∗ 8 V cycle pulse

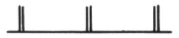
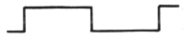
∗ 9 2V cycle pulse ().

∗ 10 2V cycle pulse series.

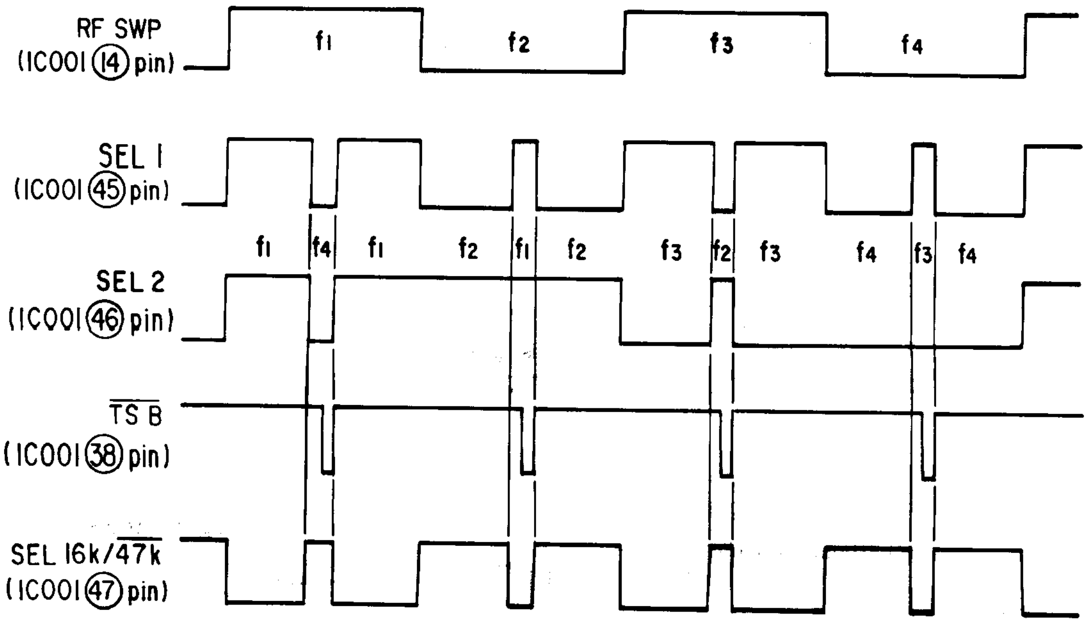
∗ 11 By the SP/LP selector (FP-57 board S953). SP mode "H", LP mode "L".

3-10. SYSTEM CONTROL—SERVO PERIPHERAL CIRCUIT INTERFACE

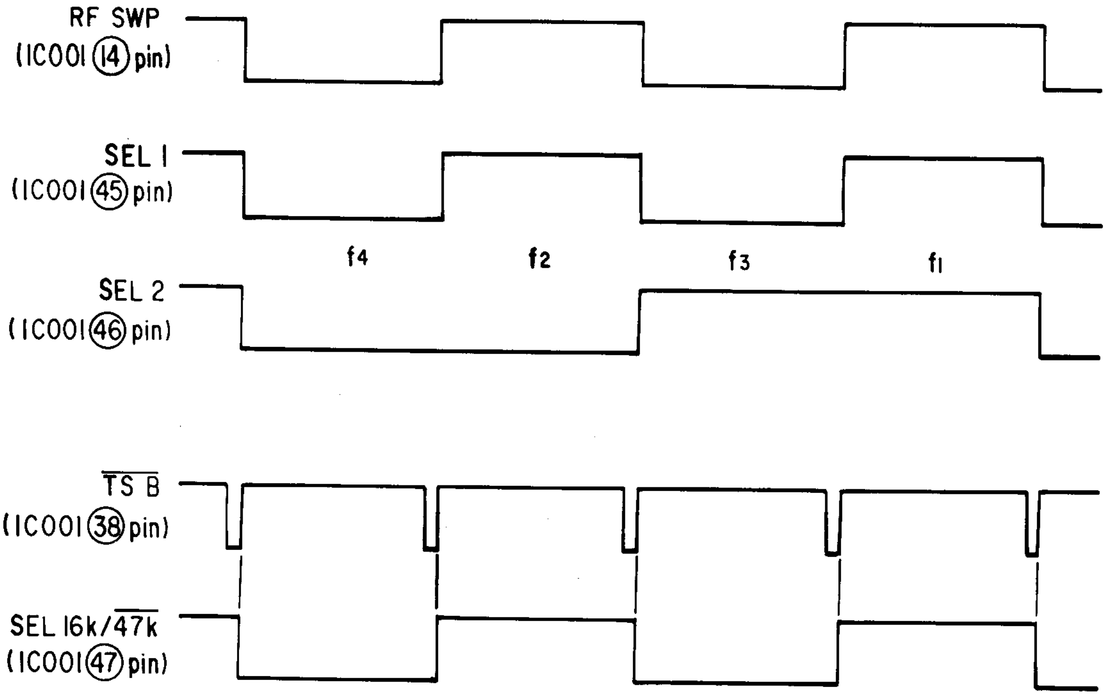
Signal	I/O	Pin No.	VTR MODE										CAMERA MODE			
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB•PAUSE	FRAME	STAND-BY	EDIT CUE	EDIT REV	REC
						CUE	REVIEW		CUE	REVIEW						
ATF ERR	I	SS-81board IC001②		∗ 1	∗ 1	∗ 2	∗ 2	∗ 2	∗ 2	∗ 2	∗ 2	∗ 2	∗ 2	∗ 2	∗ 1	
SWP DLY ∗ 3	I	SS-81board IC001③														
D PWM	O	SS-81board IC001⑤	L	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4	∗ 4
C PWM	O	SS-81board IC001⑥	L	∗ 5	∗ 5	∗ 5	∗ 5	∗ 5	∗ 5	∗ 5	L	∗ 5	L	∗ 5	∗ 5	∗ 5
D PG	I	SS-81board IC001⑩	L	∗ 6	∗ 6	∗ 6	∗ 6	∗ 6	∗ 6	∗ 6	∗ 6	∗ 6	∗ 6	∗ 6	∗ 6	∗ 6
RF SWP	O	SS-81board IC001⑭	H/L	∗ 7	∗ 7	∗ 7	∗ 7	∗ 7	∗ 7	∗ 7	∗ 7	∗ 7	∗ 7	∗ 7	∗ 7	∗ 7
REF V	I	SS-81board IC001⑮	∗ 8	∗ 8	∗ 8	L	L	L	L	L	L	L	∗ 8	L	L	∗ 8
D FG	I	SS-81board IC001⑰	H	∗ 9	∗ 9	∗ 9	∗ 9	∗ 9	∗ 9	∗ 9	∗ 9	∗ 9	∗ 9	∗ 9	∗ 9	∗ 9
C FG	I	SS-81board IC001⑱	H/L	∗ 10	∗ 10	∗ 11	∗ 12	∗ 13	∗ 11	∗ 12	H/L	∗ 14	H/L	∗ 13	∗ 13	∗ 13
$\overline{\text{CAP ON}}$	O	SS-81board IC001㉝	H	L	L	L	L	L	L	L	L	L	L	L	L	L
$\overline{\text{ATF LOCK}}$	I	SS-81board IC001㉞		H	H	H	H	L	H	H	H	H	H	L	L	H
$\overline{\text{TS B}}$	O	SS-81board IC001(38)	H	H	H	H	H	∗ 15	H	H	H	H	H	∗ 15	∗ 16	H
CAP BRK	O	SS-81board IC001(39)	L	L	L	L	L	L	L	L	L	∗ 17	L	L	L	L
CAP FWD/$\overline{\text{RVS}}$	O	SS-81board IC001(40)	H	H	L	H	L	H	H	L	H	H	H	H	L	H
SEL1	O	SS-81board IC001(45)	L	L	L	∗ 18	∗ 19	∗ 15	∗ 18	∗ 19	H	∗ 20	L	∗ 15	∗ 16	∗ 21
SEL2	O	SS-81board IC001(46)	L	L	L	∗ 18	∗ 19	∗ 15	∗ 18	∗ 19	H/L	∗ 20	H	∗ 15	∗ 16	∗ 21
SEL 16K/$\overline{\text{47K}}$	O	SS-81board IC001(47)	L	L	L	∗ 18	∗ 19	∗ 15	∗ 18	∗ 19	L	∗ 20	L	∗ 15	∗ 16	L
SLOW GAIN	O	SS-81board IC001(56)	L	L	L	L	L	L	L	L	H	H	L	L	L	L

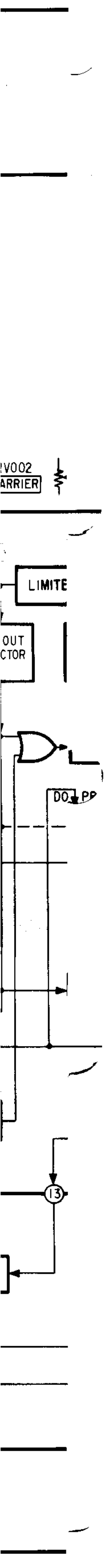
∗ 1 Fixed voltage approx. 2V DC.
∗ 2 ATF error voltage
∗ 3 DC voltage set by RV002 is input.
∗ 4 43μsec cycle PWM wave. Duty ratio changes according to drum error signal.
∗ 5 43μsec cycle PWM wave. Duty ratio changes according to capstan error signal.
∗ 6 V cycle "H" pulse ()
∗ 7 25Hz 50% duty pulse (). Synchronized to drum rotation.
∗ 8 V cycle "L" pulse separated from camera video signal.
∗ 9 600Hz pulse
∗ 10 Approx. 17300Hz pulse
∗ 11 Approx. 8380Hz pulse (SP mode)
∗ 12 Approx. 7660Hz pulse (SP mode)
∗ 13 Approx. 1152Hz pulse (SP mode)
∗ 14 Pulse input during step-by-step
∗ 15 Refer to Timing Chart 1
∗ 16 Refer to Timing Chart 2
∗ 17 "H" pulse output during step-by-step
∗ 18 Refer to Timing Chart 3
∗ 19 Refer to Timing Chart 4
∗ 20 Pulse output during step-by-step
∗ 21 Refer to Timing Chart 5

3-10-1. Timing chart 1 (PB, EDIT CUE)

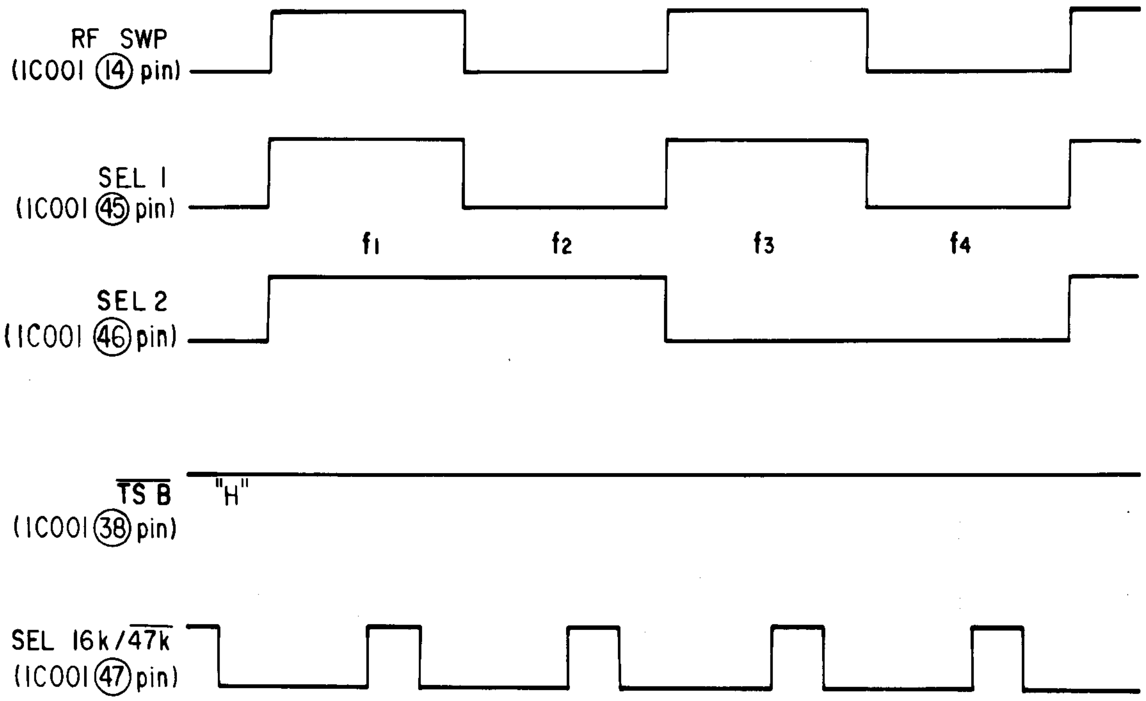

RF SWP
(IC001 ⑭ pin)
f1
f2
f3
f4
SEL 1
(IC001 ㊺ pin)
f1
f4
f1
f2
f1
f2
f3
f2
f3
f4
f3
f4
SEL 2
(IC001 ㊻ pin)
TS B
(IC001 ㊳ pin)
SEL 16k/47k
(IC001 ㊼ pin)

3-10-2. Timing chart 2 (EDIT REVIEW)

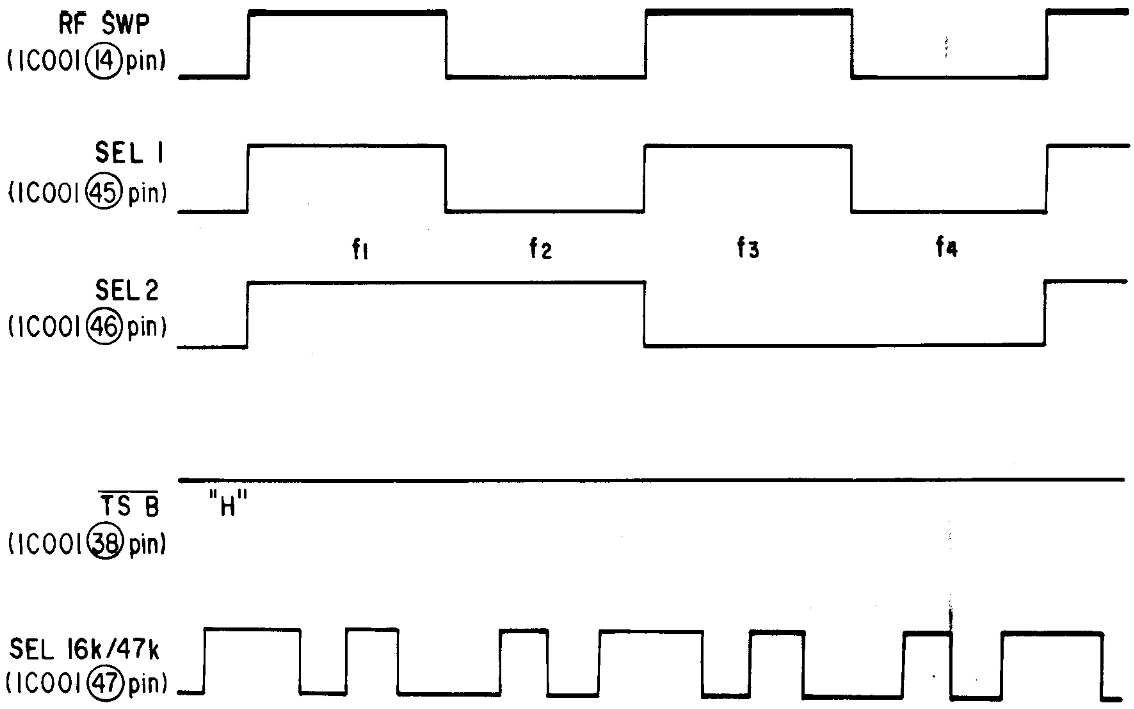

RF SWP
(IC001 ⑭ pin)
SEL 1
(IC001 ㊺ pin)
f4
f2
f3
f1
SEL 2
(IC001 ㊻ pin)
TS B
(IC001 ㊳ pin)
SEL 16k/47k
(IC001 ㊼ pin)


V002
ARRIER
LIMITE
OUT
CTOR
DO
PP
13

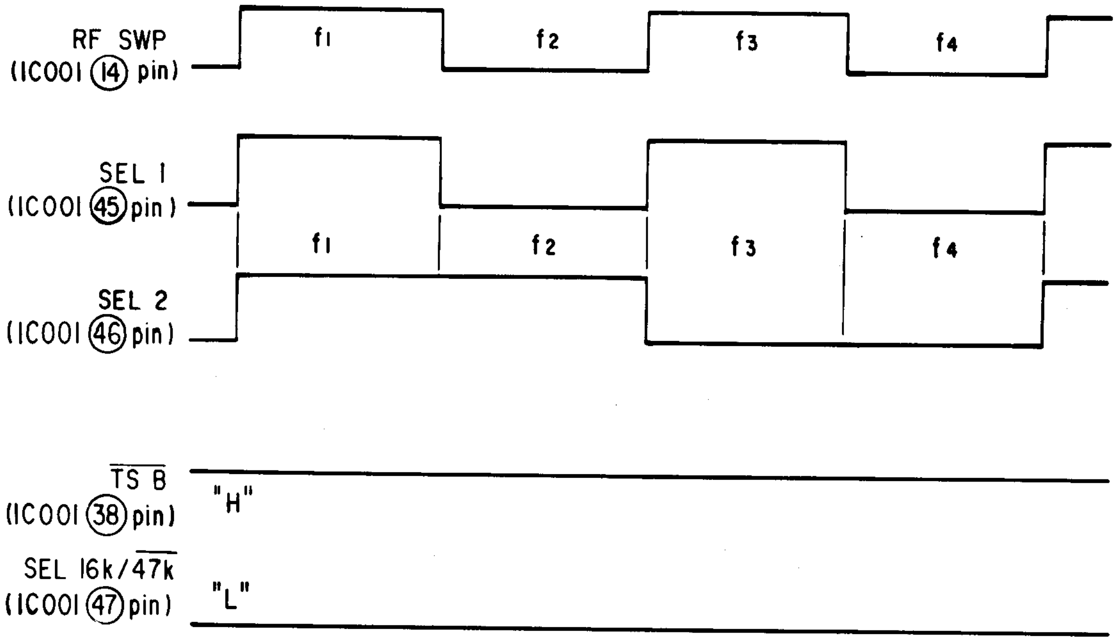
3-10-3. Timing chart 3 (CUE)


RF SWP
(IC001 ⑭ pin)
SEL 1
(IC001 ㊺ pin)
f1
f2
f3
f4
SEL 2
(IC001 ㊻ pin)
$\overline{\text{TS B}}$
"H"
(IC001 ㊳ pin)
SEL 16k/$\overline{\text{47k}}$
(IC001 ㊼ pin)

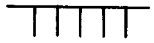
3-10-4. Timing chart 4 (REVIEW)


RF SWP
(IC001 ⑭ pin)
SEL 1
(IC001 ㊺ pin)
f1
f2
f3
f4
SEL 2
(IC001 ㊻ pin)
$\overline{\text{TS B}}$
"H"
(IC001 ㊳ pin)
SEL 16k/47k
(IC001 ㊼ pin)

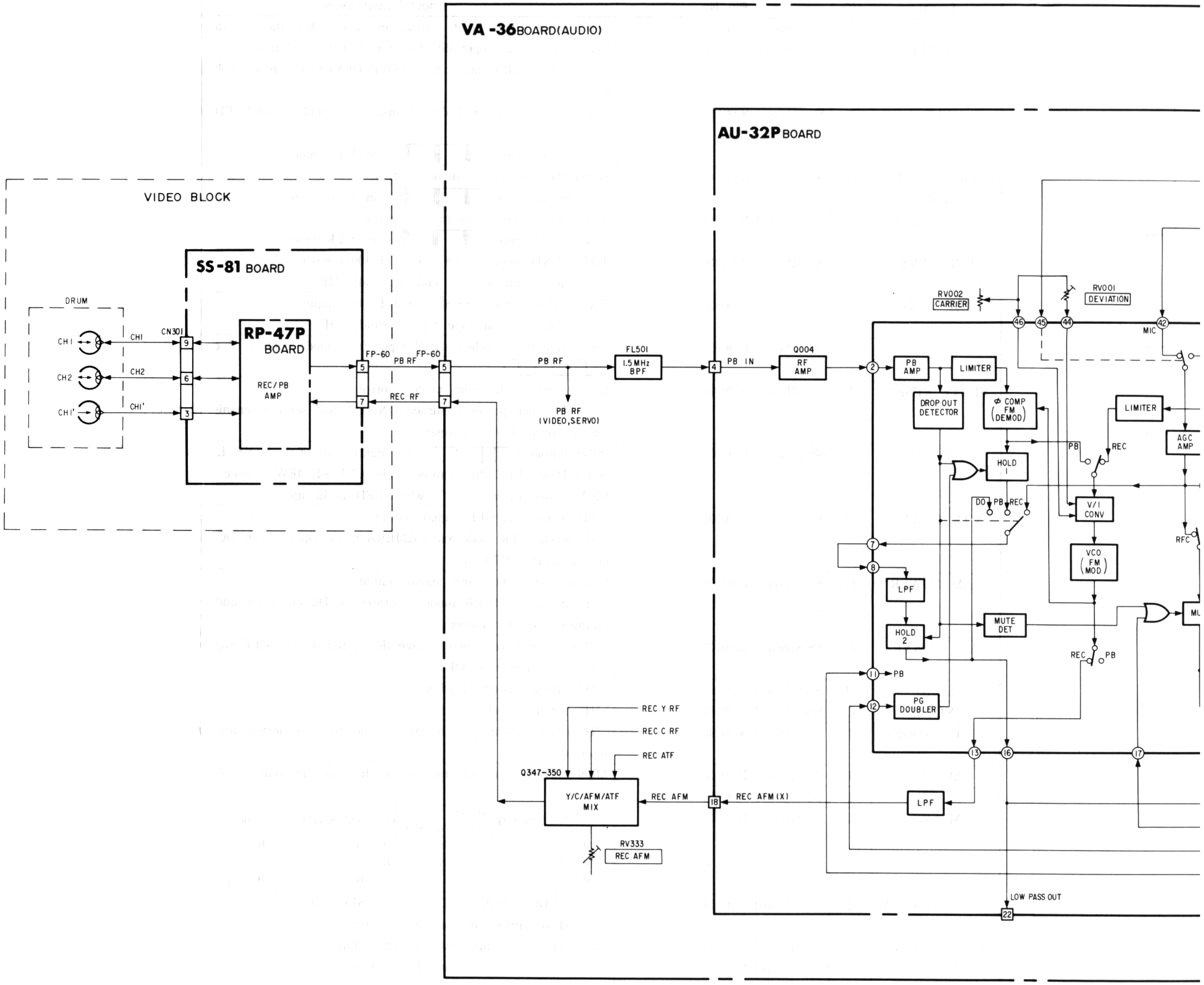
3-10-5. Timing chart 5 (REC)

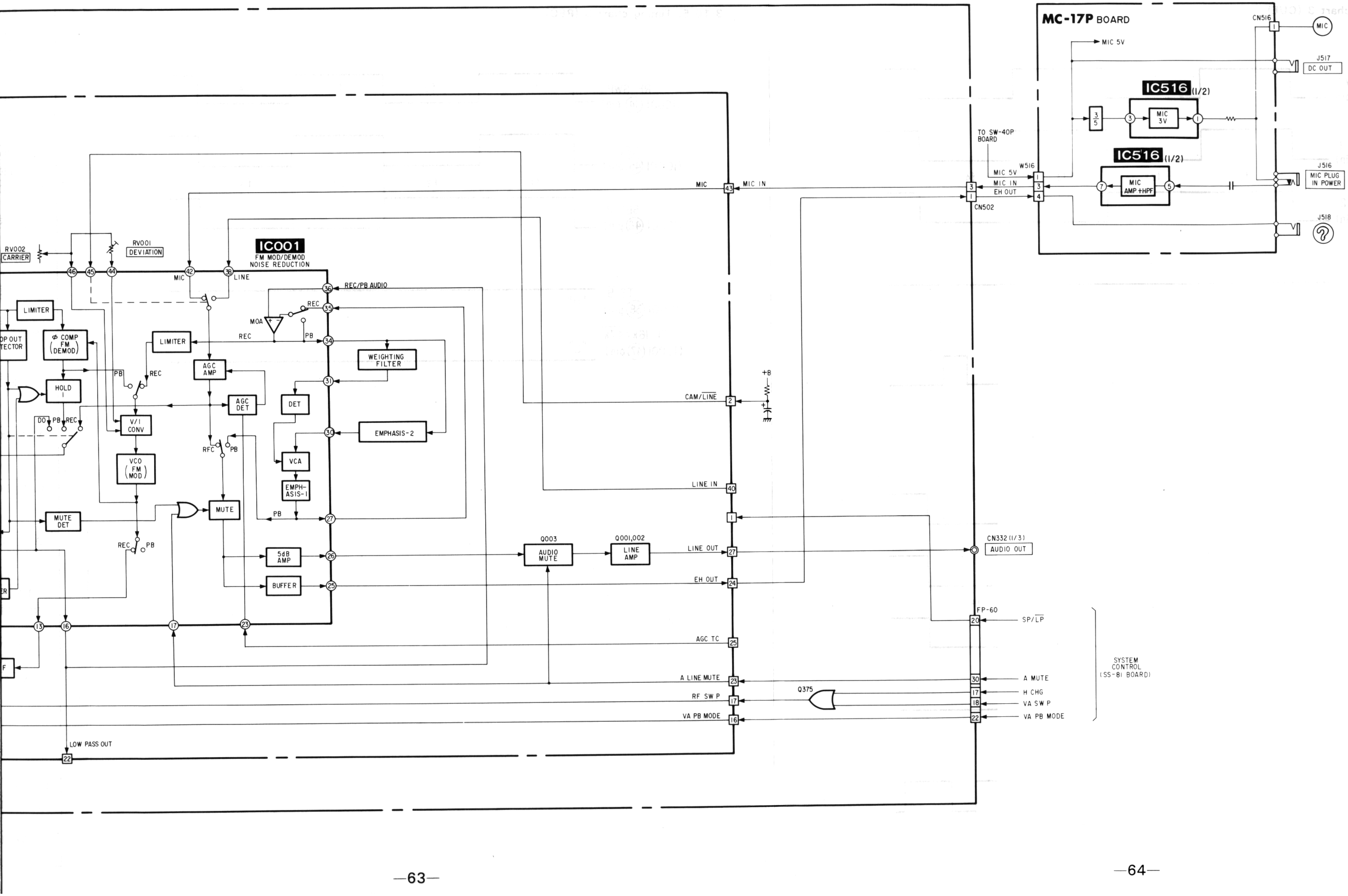

RF SWP
(IC001 ⑭ pin)
f1
f2
f3
f4
SEL 1
(IC001 ㊺ pin)
f1
f2
f3
f4
SEL 2
(IC001 ㊻ pin)
$\overline{\text{TS B}}$
(IC001 ㊳ pin)
"H"
SEL 16k/$\overline{\text{47k}}$
(IC001 ㊼ pin)
"L"

3-11. SYSTEM CONTROL—PERIPHERAL CIRCUIT INTERFACE

<table>
<tr><th>Signal</th><th>I/O</th><th>Pin No.</th><th>Input/Output Level</th></tr>
<tr><td>DEW</td><td>I</td><td>SS-81board IC001①</td><td>Dew sensor input. Input voltage increases when there is dew.</td></tr>
<tr><td>VA REF</td><td>I</td><td>SS-81board IC001④</td><td>Reference voltage input (5V DC) for A-D conversion of pin ① (DEW), pin ② (ATF ERR) and pin ③ (SWP DLY) input analog voltage (0-5V DC).</td></tr>
<tr><td>CLK</td><td>I</td><td>SS-81board IC001⑦</td><td>Clock input from serial data transmission mode control (FD-4P board IC151).
V cycle "L" pulse ( ) in VTR mode.</td></tr>
<tr><td>DATA TO MASTER</td><td>O</td><td>SS-81board IC001⑧</td><td>Serial data output to mode control.
V cycle "L" pulse ( ) in VTR mode.</td></tr>
<tr><td>DATA TO SLAVE</td><td>I</td><td>SS-81board IC001⑨</td><td>Serial data input from mode control.
V cycle "L" pulse ( ) in VTR mode.</td></tr>
<tr><td>$\overline{\text{END SENS}}$</td><td>I</td><td>SS-81board IC001⑲</td><td>TAPE END sensor (SS-81 board PH001) input.
"L" pulse input at tape end. Normally "H" .</td></tr>
<tr><td>$\overline{\text{TOP SENS}}$</td><td>I</td><td>SS-81board IC001㉑</td><td>TAPE TOP sensor (SS-81 board PH002) input.
"L" pulse input at tape top. Normally "H" .</td></tr>
<tr><td>$\overline{\text{CS}}$</td><td>I</td><td>SS-81board IC001㉒</td><td>Serial signal chip select signal input from mode control. V cycle pulse ( ).</td></tr>
<tr><td>$\overline{\text{SLAVE RESET}}$</td><td>I</td><td>SS-81board IC001㉓</td><td>Reset signal input from mode control.
Goes "L" when power is turned ON/OFF and servo/mechanism control (SS-81 board IC001) is reset.</td></tr>
<tr><td>$\overline{\text{T/E LED}}$</td><td>O</td><td>SS-81board IC001㉛</td><td>Pulse output () for lighting up T/E SENS LED (FP-53 board D502). REC/PB 100msec cycle. CUE/REVIEW 17msec cycle. FF/REW 3msec cycle. "L" when LED is lit up.</td></tr>
<tr><td>VTR POWER</td><td>O</td><td>SS-81board IC001㉟</td><td>VTR power ON/OFF signal output.
"H" during VTR mode and CAMERA mode. Operates DC-DC converter, and generates VTR 5V.</td></tr>
<tr><td>CAM POWER</td><td>O</td><td>SS-81board IC001㊱</td><td>Camera power ON/OFF signal output.
"H" during CAMERA mode. Operates DC-DC converter and generates voltages used for camera.</td></tr>
<tr><td>$\overline{\text{A/D POWER}}$</td><td>O</td><td>SS-81board IC001㊲</td><td>A-D conversion reference voltage (IC001 pin ④) ON/OFF signal output.
"H" when power is OFF.</td></tr>
<tr><td>LOAD</td><td>O</td><td>SS-81board IC001㊶</td><td>"H" during cassette loading.</td></tr>
<tr><td>UNLOAD</td><td>O</td><td>SS-81board IC001㊷</td><td>"H" during cassette eject.</td></tr>
<tr><td>$\overline{\text{REC PROOF}}$</td><td>I</td><td>SS-81board IC001㊾</td><td>"H" when cassette which can not be recorded (erase prevention) is inserted.</td></tr>
<tr><td>M SW1</td><td>I</td><td>SS-81board IC001㊿</td><td rowspan="3">Mode switch input for mechanism. Indicates mechanism position.
<table>
<tr><th>Mechanism position</th><th>READY</th><th>REC/PB/ CUE/REV/FF/REW</th><th>GL</th><th>STOP</th><th>EJECT</th><th>Mid-position</th></tr>
<tr><td>M SW1</td><td>L</td><td>H</td><td>H</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>M SW2</td><td>H</td><td>H</td><td>L</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>M SW3</td><td>H</td><td>L</td><td>L</td><td>H</td><td>H</td><td>H</td></tr>
</table></td></tr>
<tr><td>M SW2</td><td>I</td><td>SS-81board IC001(51)</td></tr>
<tr><td>M SW3</td><td>I</td><td>SS-81board IC001(52)</td></tr>
<tr><td>$\overline{\text{AUTO LOCK SW}}$</td><td>I</td><td>SS-81board IC001(53)</td><td>AUTO LOCK switch (FD-4P board S151) input.
"L" when camera is used in full auto.</td></tr>
<tr><td>BATTERY LEVEL</td><td>I</td><td>SS-81board IC001(62)</td><td>Main battery voltage level detection input.</td></tr>
<tr><td>T REEL FG</td><td>I</td><td>SS-81board IC001(63)</td><td>T REEL FG (FP-53 board D504) input.
Pulse corresponds to S reel rotation.</td></tr>
<tr><td>S REEL FG</td><td>I</td><td>SS-81board IC001(64)</td><td>S REEL FG (FP-53 board D503) input.
Pulse corresponds to S reel rotation.</td></tr>
</table>

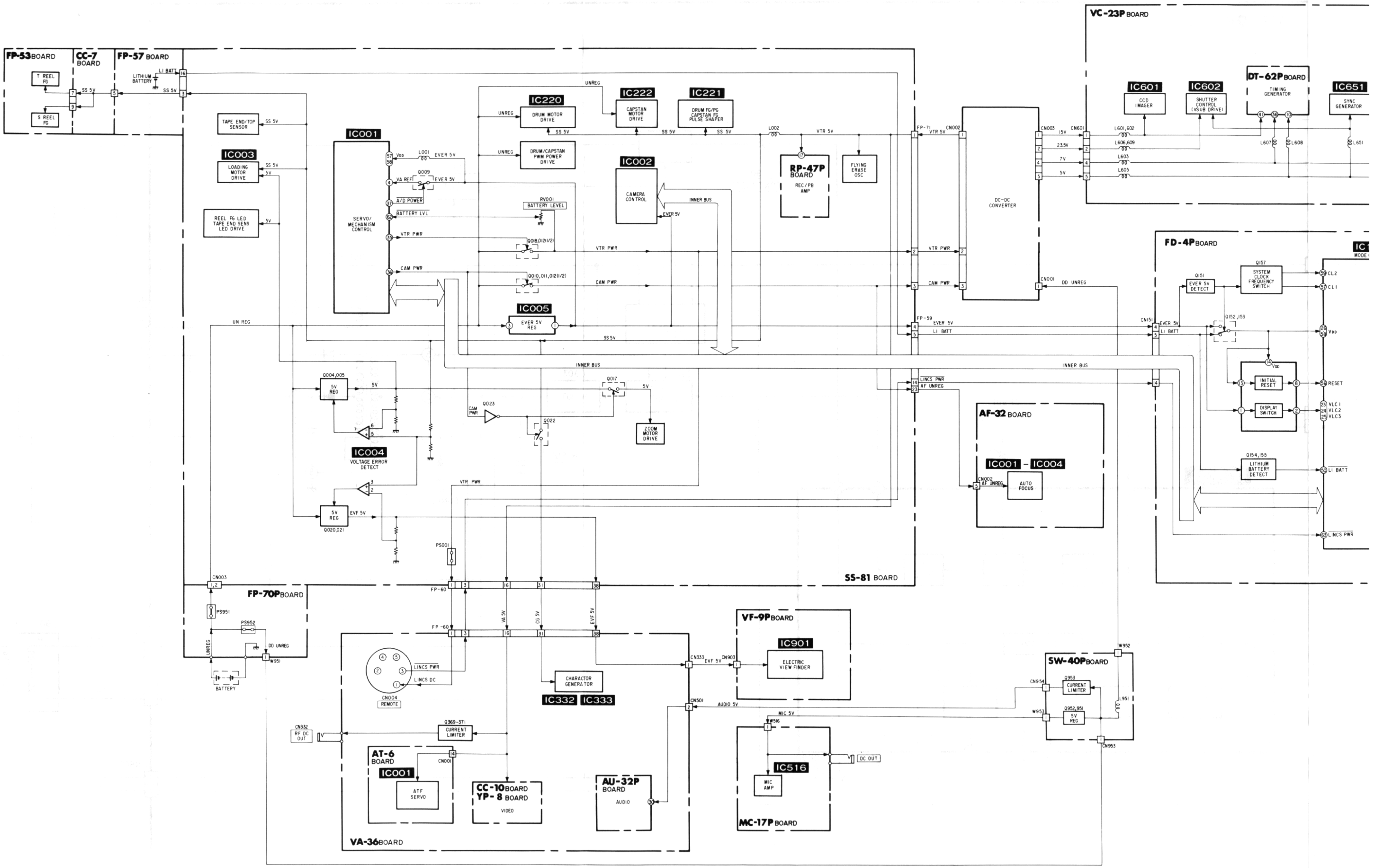
3-12. AUDIO BLOCK DIAGRAM


VIDEO BLOCK
DRUM
CH1
CH2
CH1'
CH1
CH2
CH1'
CN301
9
6
3
SS-81 BOARD
RP-47P BOARD
REC/PB AMP
FP-60
FP-60
5
7
5
7
PB RF
REC RF
VA-36 BOARD (AUDIO)
PB RF
PB RF (VIDEO, SERVO)
FL501
1.5MHz BPF
4
PB IN
Q004
RF AMP
AU-32P BOARD
RV002
CARRIER
RV001
DEVIATION
46
45
44
42
MIC
2
PB AMP
LIMITER
DROP OUT DETECTOR
Φ COMP (FM DEMOD)
LIMITER
AGC AMP
PB
REC
HOLD 1
DO
PB
REC
V/I CONV
VCO (FM MOD)
RFC
7
8
LPF
HOLD 2
MUTE DET
MU
REC
PB
11
PB
12
PG DOUBLER
13
16
17
REC Y RF
REC C RF
REC ATF
Q347-350
Y/C/AFM/ATF MIX
REC AFM
18
REC AFM (X)
LPF
RV333
REC AFM
LOW PASS OUT
22

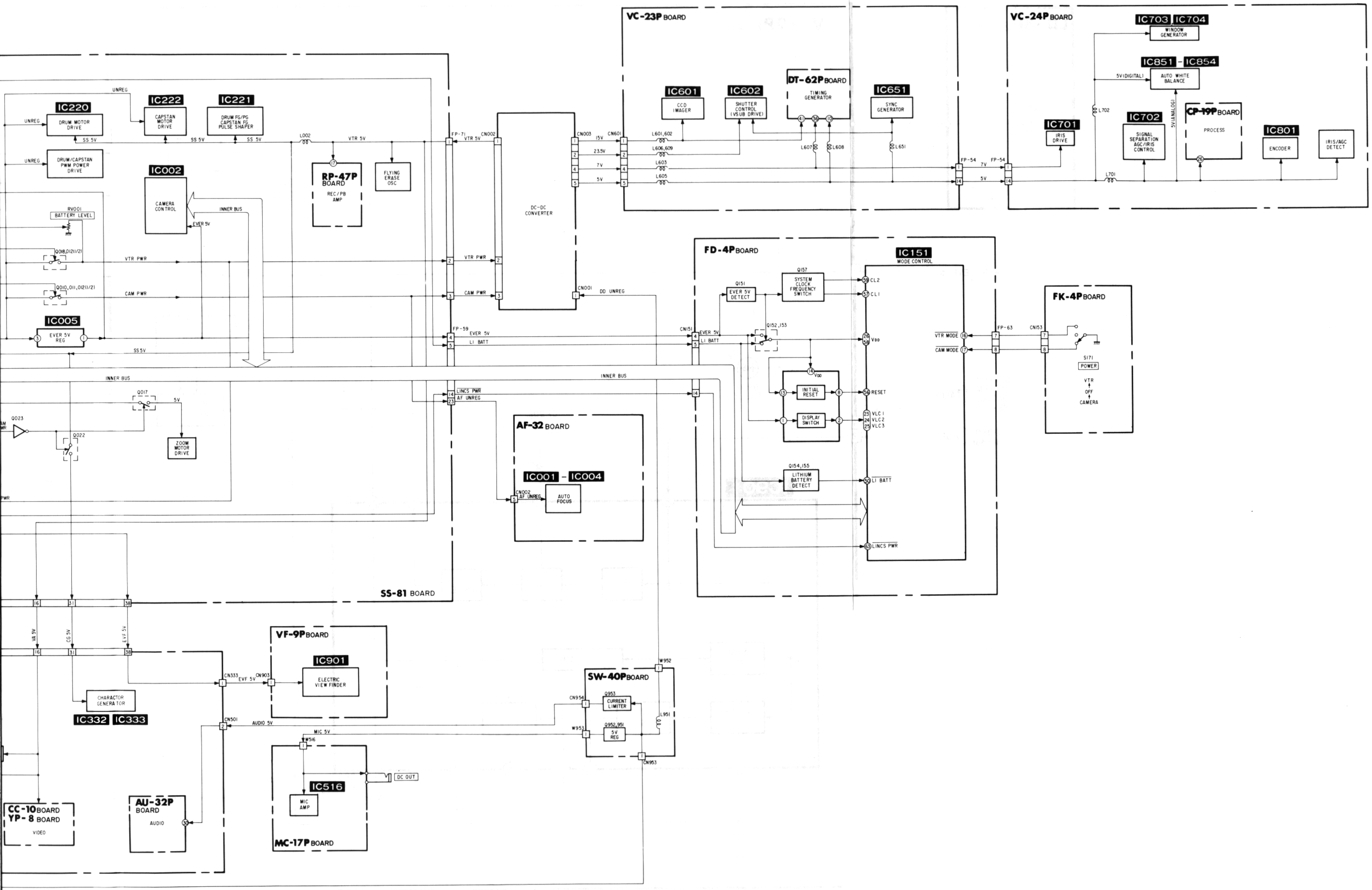


MC-17P BOARD
CN516
MIC
MIC 5V
J517
DC OUT
IC516 (1/2)
3/5
MIC 3V
IC516 (1/2)
MIC AMP +HPF
J516
MIC PLUG IN POWER
J518
TO SW-40P BOARD
W516
MIC 5V
MIC IN
EH OUT
CN502
IC001
FM MOD/DEMOD NOISE REDUCTION
RV002
CARRIER
RV001
DEVIATION
MIC
LINE
REC/PB AUDIO
REC
PB
MOA
LIMITER
LIMITER
DP OUT
TECTOR
Φ COMP FM (DEMOD)
HOLD I
AGC AMP
AGC DET
DET
WEIGHTING FILTER
EMPHASIS-2
V/I CONV
VCO (FM MOD)
RFC
VCA
EMPH-ASIS-1
MUTE
MUTE DET
DO
5dB AMP
BUFFER
Q003
AUDIO MUTE
Q001,002
LINE AMP
MIC IN
CAM/LINE
+B
LINE IN
LINE OUT
EH OUT
AGC TC
A LINE MUTE
RF SW P
VA PB MODE
Q375
LOW PASS OUT
CN332 (1/3)
AUDIO OUT
FP-60
SP/LP
A MUTE
H CHG
VA SW P
VA PB MODE
SYSTEM CONTROL (SS-81 BOARD)

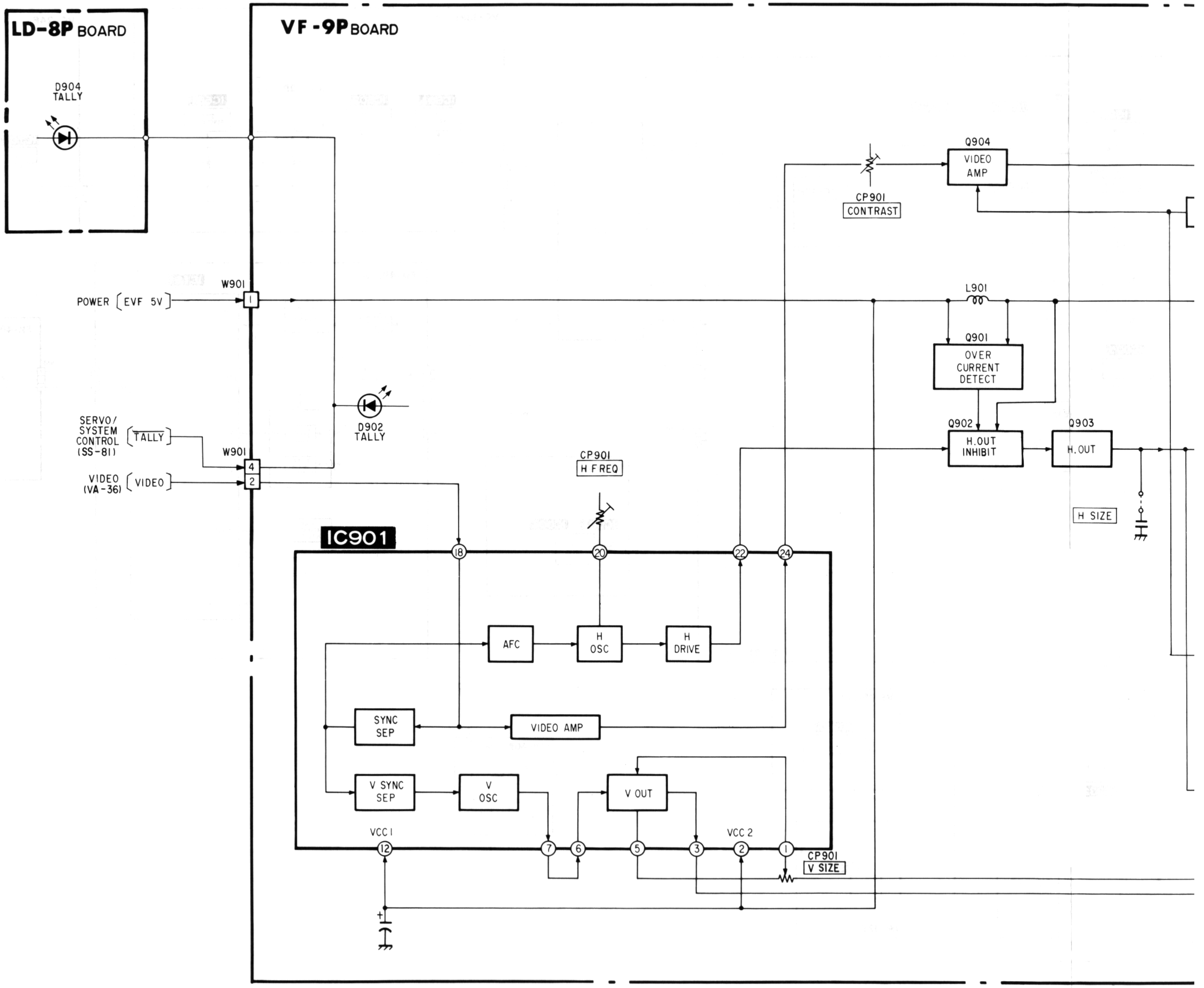
3-13. POWER BLOCK DIAGRAM

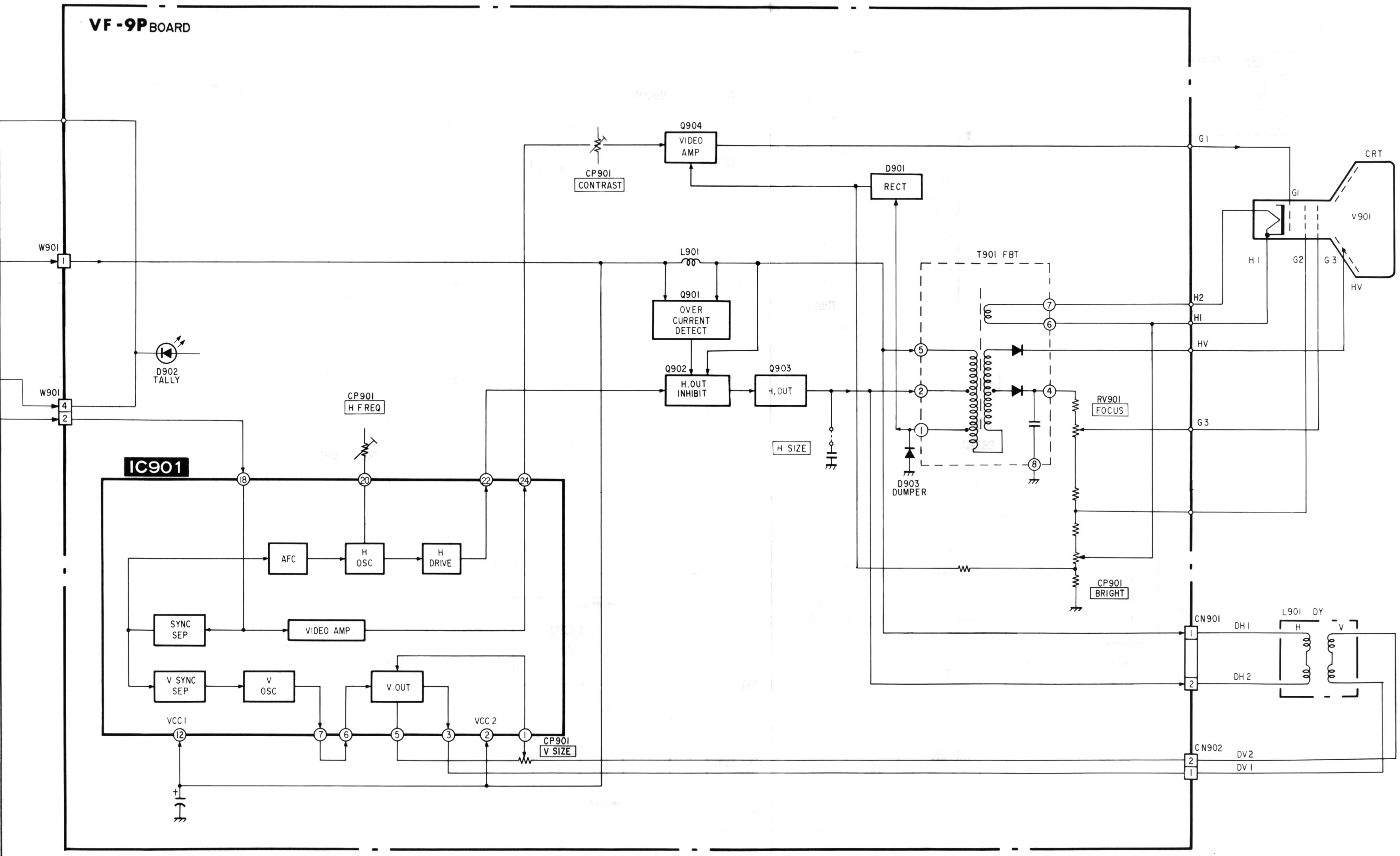


FP-53 BOARD
T REEL FG
S REEL FG
CC-7 BOARD
FP-57 BOARD
LITHIUM BATTERY
LI BATT
SS 5V
UNREG
TAPE END/TOP SENSOR
IC003
LOADING MOTOR DRIVE
REEL FG LED TAPE END SENS LED DRIVE
IC001
SERVO/ MECHANISM CONTROL
VDD
L001
EVER 5V
Q009
VA REF
A/D POWER
BATTERY LVL
VTR PWR
CAM PWR
RV001 BATTERY LEVEL
Q018,012(1/2)
Q010,011,012(1/2)
IC220
DRUM MOTOR DRIVE
DRUM/CAPSTAN PWM POWER DRIVE
IC222
CAPSTAN MOTOR DRIVE
IC221
DRUM FG/PG CAPSTAN FG PULSE SHAPER
IC002
CAMERA CONTROL
INNER BUS
IC005
EVER 5V REG
UN REG
L002
VTR 5V
RP-47P BOARD
REC/PB AMP
FLYING ERASE OSC
FP-71
CN002
DC-DC CONVERTER
CN003
CN001
DD UNREG
FP-59
LI BATT
LINCS PWR
AF UNREG
Q004,005
5V REG
5V
IC004
VOLTAGE ERROR DETECT
Q020,021
EVF 5V
CAM PWR
Q023
Q022
Q017
ZOOM MOTOR DRIVE
PS001
SS-81 BOARD
CN003
FP-70P BOARD
PS951
PS952
DD UNREG
W951
BATTERY
FP-60
VA 5V
CG 5V
EVF 5V
VA-36 BOARD
CN004 REMOTE
LINCS DC
CN332 RF DC OUT
Q369-371 CURRENT LIMITER
AT-6 BOARD
IC001
ATF SERVO
CN001
CC-10 BOARD
YP-8 BOARD
VIDEO
CHARACTOR GENERATOR
IC332
IC333
AU-32P BOARD
AUDIO
CN333
CN501
AUDIO 5V
VF-9P BOARD
CN903
IC901
ELECTRIC VIEW FINDER
MIC 5V
W516
IC516
MIC AMP
DC OUT
MC-17P BOARD
SW-40P BOARD
W952
CN954
Q953 CURRENT LIMITER
W953
Q952,951 5V REG
L951
CN953
AF-32 BOARD
IC001 - IC004
CN002
AUTO FOCUS
VC-23P BOARD
IC601
CCD IMAGER
IC602
SHUTTER CONTROL (VSUB DRIVE)
DT-62P BOARD
TIMING GENERATOR
IC651
SYNC GENERATOR
CN601
15V
23.5V
7V
5V
L601,602
L606,609
L603
L605
L607
L608
L651
FD-4P BOARD
CN151
Q151 EVER 5V DETECT
Q157 SYSTEM CLOCK FREQUENCY SWITCH
Q152,153
INITIAL RESET
DISPLAY SWITCH
Q154,155 LITHIUM BATTERY DETECT
CL2
CL1
VDD
RESET
VLC1
VLC2
VLC3
LI BATT
LINCS PWR


VC-23P BOARD
IC601 CCD IMAGER
IC602 SHUTTER CONTROL (VSUB DRIVE)
DT-62P BOARD TIMING GENERATOR
IC651 SYNC GENERATOR
CN601
15V
23.5V
7V
5V
L601,602
L606,609
L603
L605
L607
L608
L651
FP-54
VC-24P BOARD
IC703 IC704 WINDOW GENERATOR
IC851 - IC854 AUTO WHITE BALANCE
5V(DIGITAL)
5V(ANALOG)
L702
IC701 IRIS DRIVE
IC702 SIGNAL SEPARATION AGC/IRIS CONTROL
CP-19P BOARD PROCESS
IC801 ENCODER
IRIS/AGC DETECT
L701
IC220 DRUM MOTOR DRIVE
IC222 CAPSTAN MOTOR DRIVE
IC221 DRUM FG/PG CAPSTAN FG PULSE SHAPER
UNREG
SS 5V
DRUM/CAPSTAN PWM POWER DRIVE
IC002 CAMERA CONTROL
INNER BUS
EVER 5V
RV001 BATTERY LEVEL
Q018,Q121(1/2)
Q010,011,012(1/2)
VTR PWR
CAM PWR
IC005 EVER 5V REG
SS5V
L002
VTR 5V
RP-47P BOARD REC/PB AMP
FLYING ERASE OSC
FP-71
CN002
DC-DC CONVERTER
CN003
CN001
DD UNREG
FP-59
LI BATT
LINCS PWR
AF UNREG
Q017
Q023
Q022
ZOOM MOTOR DRIVE
SS-81 BOARD
AF-32 BOARD
IC001 - IC004 AUTO FOCUS
FD-4P BOARD
IC151 MODE CONTROL
Q151 EVER 5V DETECT
Q157 SYSTEM CLOCK FREQUENCY SWITCH
Q152,153
CN151
CL2
CL1
VDD
INITIAL RESET
DISPLAY SWITCH
RESET
VLC1
VLC2
VLC3
Q154,155 LITHIUM BATTERY DETECT
LI BATT
LINCS PWR
VTR MODE
CAM MODE
FP-63
FK-4P BOARD
CN153
S171 POWER
VTR
OFF
CAMERA
VA 5V
CG 5V
EVF 5V
CN333
CN903
VF-9P BOARD
IC901 ELECTRIC VIEW FINDER
CHARACTOR GENERATOR
IC332 IC333
CN501
AUDIO 5V
MIC 5V
SW-40P BOARD
W952
CN954
Q953 CURRENT LIMITER
Q952,951 5V REG
W953
CN953
L951
W516
IC516 MIC AMP
DC OUT
MC-17P BOARD
CC-10 BOARD
YP-8 BOARD
VIDEO
AU-32P BOARD AUDIO

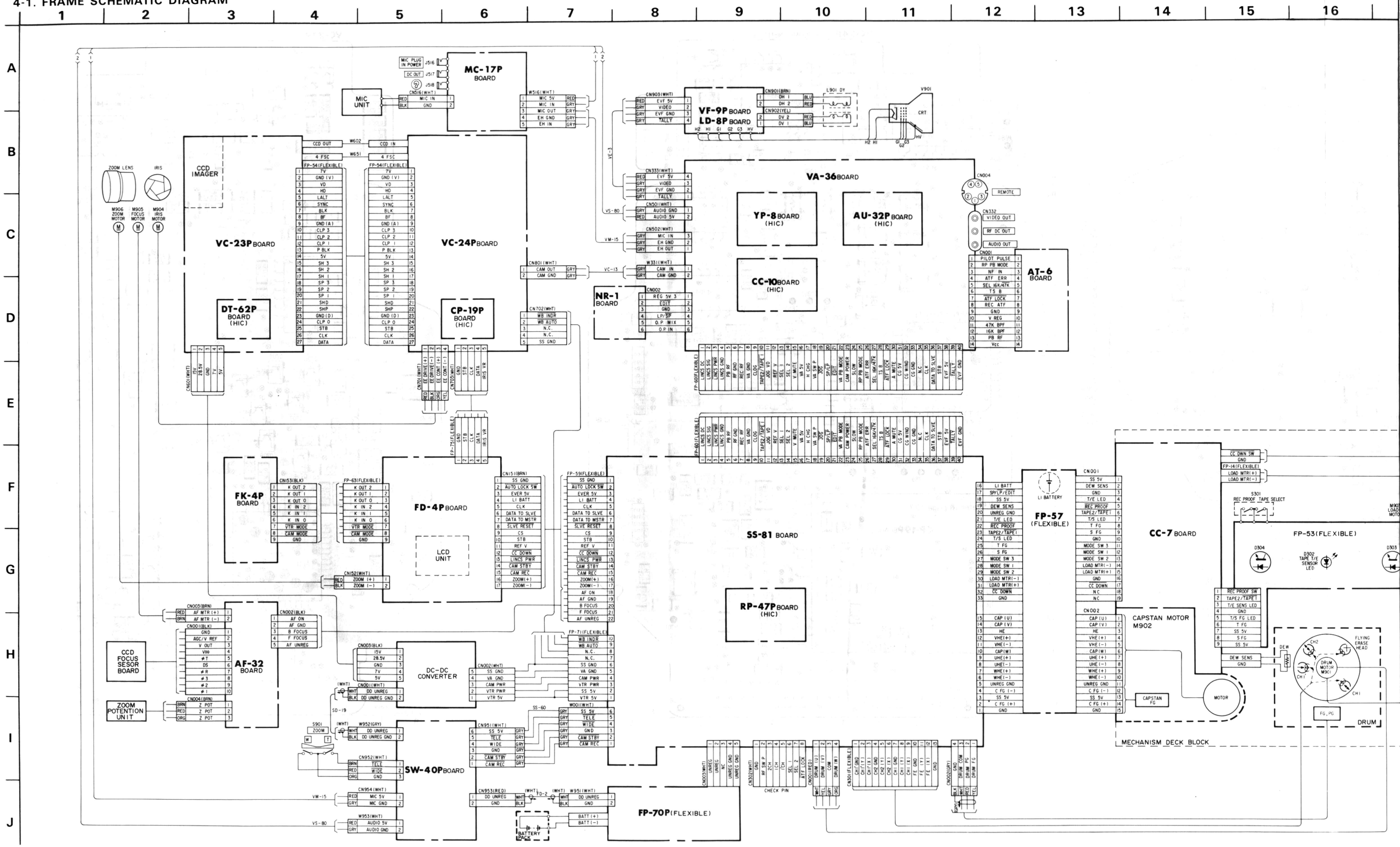
3-14. VIEWFINDER BLOCK DIAGRAM

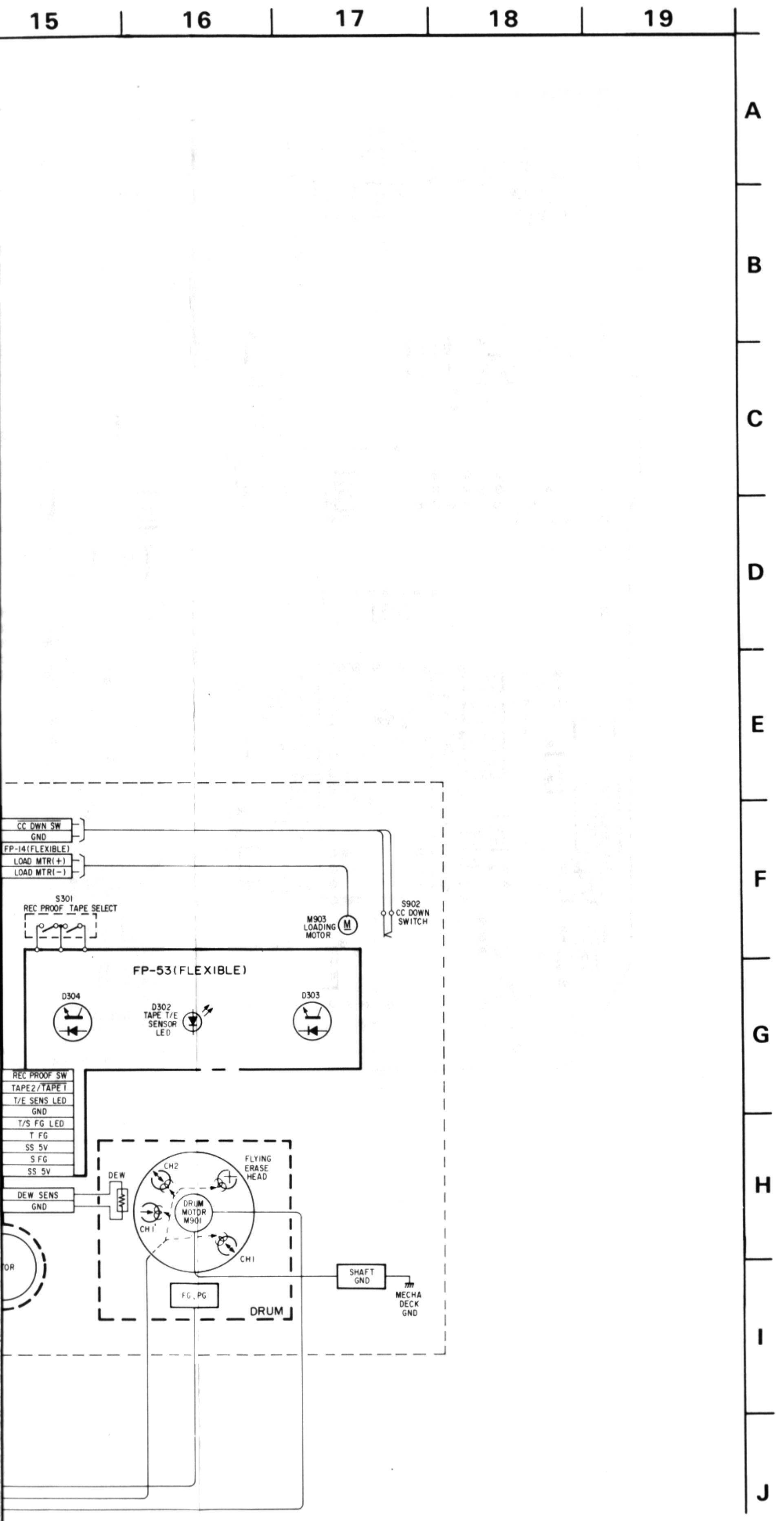

LD-8P BOARD
D904
TALLY
VF-9P BOARD
POWER (EVF 5V)
W901
1
SERVO/
SYSTEM
CONTROL
(SS-81)
TALLY
W901
4
VIDEO
(VA-36)
VIDEO
2
D902
TALLY
CP901
H FREQ
CP901
CONTRAST
Q904
VIDEO
AMP
L901
Q901
OVER
CURRENT
DETECT
Q902
H.OUT
INHIBIT
Q903
H.OUT
H SIZE
IC901
18
20
22
24
AFC
H
OSC
H
DRIVE
SYNC
SEP
VIDEO AMP
V SYNC
SEP
V
OSC
V OUT
VCC 1
12
7
6
5
3
VCC 2
2
1
CP901
V SIZE


VF-9P BOARD
W901
D902
TALLY
CP901
H FREQ
IC901
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP
V SYNC SEP
V OSC
V OUT
VCC 1
VCC 2
CP901
V SIZE
Q904
VIDEO AMP
CP901
CONTRAST
D901
RECT
L901
Q901
OVER CURRENT DETECT
Q902
H.OUT INHIBIT
Q903
H.OUT
H SIZE
D903
DUMPER
T901 FBT
RV901
FOCUS
CP901
BRIGHT
G1
H2
H1
HV
G3
CRT
V901
G2
CN901
DH 1
DH 2
L901 DY
H
V
CN902
DV 2
DV 1

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

4-1. FRAME SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
MC-17P BOARD
MIC PLUG IN POWER J516
DC OUT J517
J518
MIC UNIT
CN516(WHT)
W516(WHT)
MIC 5V
MIC IN
MIC OUT
EH GND
EH IN
VF-9P BOARD
LD-8P BOARD
CN903(WHT)
CN901(BRN)
CN902(YEL)
L901 DY
V901
CRT
HV
VA-36 BOARD
YP-8 BOARD (HIC)
AU-32P BOARD (HIC)
CC-10 BOARD (HIC)
CN004
REMOTE
CN332
VIDEO OUT
RF DC OUT
AUDIO OUT
AT-6 BOARD
CN001
NR-1 BOARD
CN002
CN333(WHT)
CN501(WHT)
CN502(WHT)
W331(WHT)
VE-3
VS-80
VM-15
VC-13
ZOOM LENS
IRIS
M906 ZOOM MOTOR
M905 FOCUS MOTOR
M904 IRIS MOTOR
CCD IMAGER
VC-23P BOARD
VC-24P BOARD
DT-62P BOARD (HIC)
CP-19P BOARD (HIC)
W602
W651
CCD OUT
CCD IN
4 FSC
FP-54(FLEXIBLE)
CN801(WHT)
CN702(WHT)
CN601(WHT)
CN701(WHT)
CN703(WHT)
FP-60(FLEXIBLE)
FP-61(FLEXIBLE)
FP-75(FLEXIBLE)
FK-4P BOARD
CN153(BLK)
FP-63(FLEXIBLE)
FD-4P BOARD
LCD UNIT
CN151(BRN)
CN152(WHT)
FP-59(FLEXIBLE)
FP-71(FLEXIBLE)
SS-81 BOARD
RP-47P BOARD (HIC)
FP-57 (FLEXIBLE)
LI BATTERY
CC-7 BOARD
CN001
CN002
CAPSTAN MOTOR M902
CAPSTAN FG
MOTOR
MECHANISM DECK BLOCK
FP-14(FLEXIBLE)
FP-53(FLEXIBLE)
S301 REC PROOF TAPE SELECT
D304
D302 TAPE T/E SENSOR LED
D303
DEW
DRUM MOTOR M901
FLYING ERASE HEAD
CH1
CH2
FG, PG
DRUM
AF-32 BOARD
CN003(BRN)
CN001(BLK)
CN002(BLK)
CN004(BRN)
CCD FOCUS SESOR BOARD
ZOOM POTENTION UNIT
DC-DC CONVERTER
CN003(BLK)
CN002(WHT)
CN001(WHT)
W001(WHT)
SW-40P BOARD
S901 ZOOM
W952(GRY)
CN951(WHT)
CN952(WHT)
CN953(RED)
CN954(WHT)
W953(WHT)
W951(WHT)
SD-19
SS-60
FD-2
BATTERY PACK
FP-70P (FLEXIBLE)
BATT (+)
BATT (−)
CHECK PIN
CN003(WHT)
CN502(WHT)
CN001(RED)
CN501(FLEXIBLE)
CN002(GRY)


15
16
17
18
19
A
B
C
D
E
F
G
H
I
J
CC DWN SW
GND
FP-14(FLEXIBLE)
LOAD MTR(+)
LOAD MTR(−)
S301
REC PROOF TAPE SELECT
M903
LOADING
MOTOR
M
S902
CC DOWN
SWITCH
FP-53(FLEXIBLE)
D304
D302
TAPE T/E
SENSOR
LED
D303
REC PROOF SW
TAPE2/TAPE1
T/E SENS LED
GND
T/S FG LED
T FG
SS 5V
S FG
SS 5V
DEW SENS
GND
DEW
CH2
FLYING
ERASE
HEAD
DRUM
MOTOR
M901
CH1'
CH1
TOR
SHAFT
GND
MECHA
DECK
GND
FG, PG
DRUM

PRECAUTION FOR REPLACEMENT OF CCD IMAGER BLOCK

- After the CCD imager block has been replaced, perform the entire adjustments of the camera section.
- CCD imager is structurally in case of being broken down by static electricity. For this reason, take care to handle it as well as MOS IC. Moreover, care should be taken for dust not to be stuck on the light reseiving section and for strong light not to get into there.

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

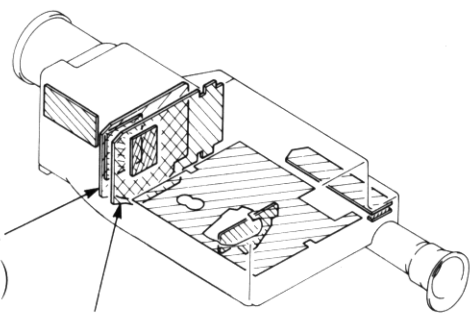
Note:

- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- Digital transistor (VC-24P board: Q851, Q852, Q853, Q854, Q857, Q858, Q859, Q862): transistor with resistor.
Refer to the VC-24P board schematic diagram for digital transistor.

Caution:

Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

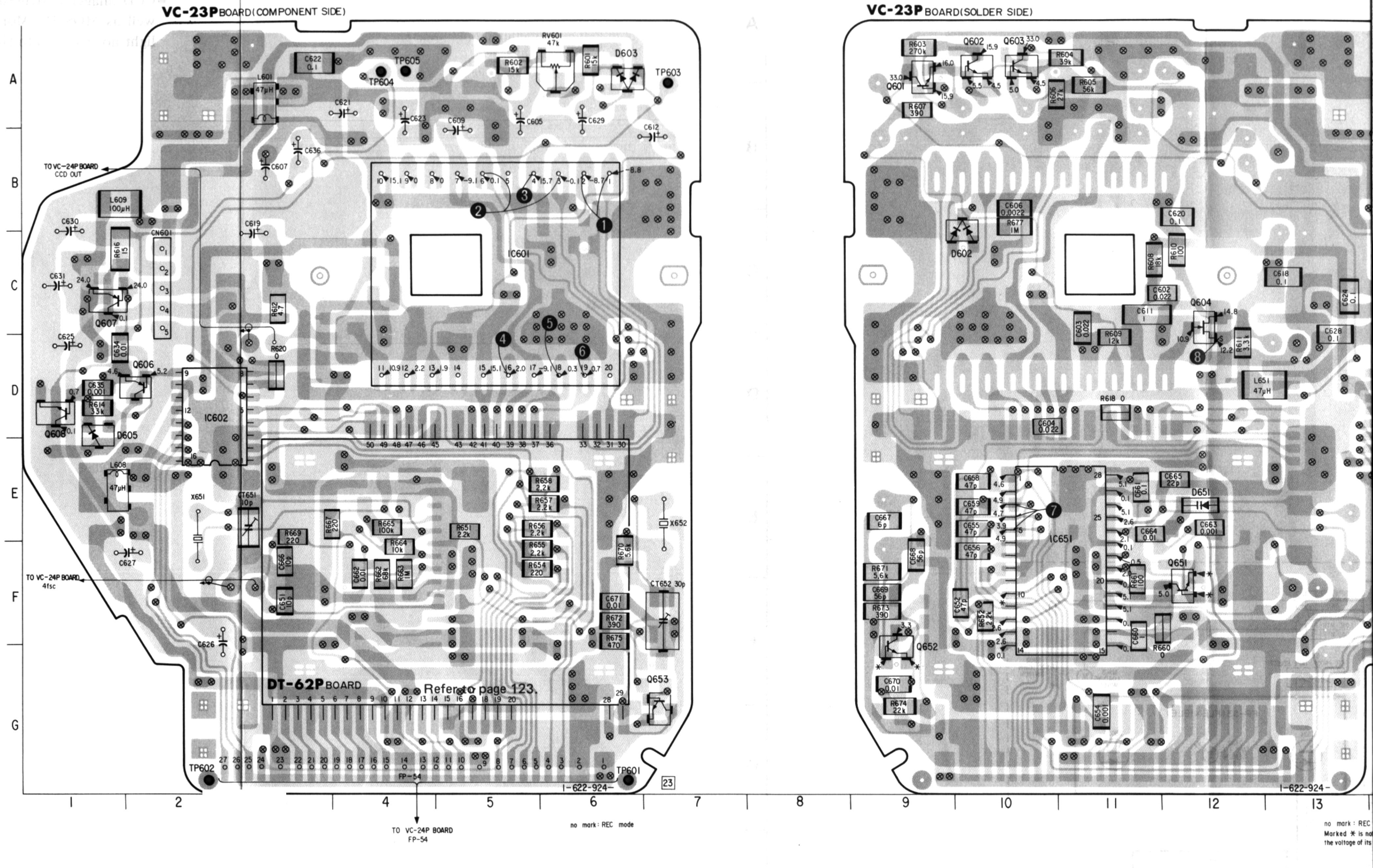
When indicating parts by reference number, please include the board name.


VC-23P
(CCD Imager, Timing/SYNC Generator)
VC-24P
(Camera Encoder, AGC/IRIS Control)

VC-23P(CCD IMAGER, TIMING/SYNC GENERATOR), VC-24P(CAMERA ENCODER, AGC/IRIS CONTROL) PRINTED WIRING BOARDS

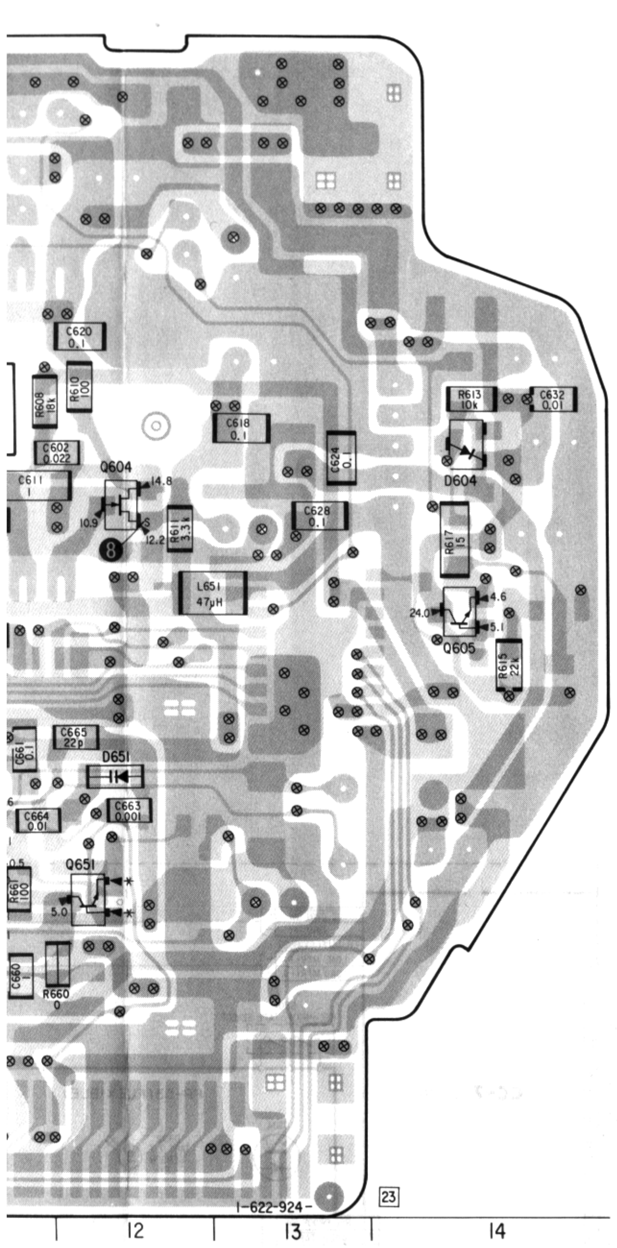
—Ref. No. VC-23P and VC-24P BOARDS : 1, 000 series—

CN601	C-2
CT651	E-3
CT652	F-7
D602	C-10
D603	A-6
D604	C-14
D651	D-1
FP-54	G-4
IC601	C-5
IC602	D-2
IC651	E-11
Q601	A-9
Q602	A-10
Q603	A-10
Q604	A-12
Q605	D-14
Q606	D-2
Q607	C-1
Q608	D-1
Q651	F-12
Q652	F-9
Q653	G-7
RV601	A-6
TP601	G-6
TP602	G-2
TP603	A-7
TP604	A-3
TP605	A-3


VC-23P BOARD(COMPONENT SIDE)
VC-23P BOARD(SOLDER SIDE)
A
B
C
D
E
F
G
1
2
4
5
6
7
8
9
10
11
12
13
TO VC-24P BOARD CCD OUT
TO VC-24P BOARD 4fsc
IC601
IC602
IC651
CN601
DT-62P BOARD
Refer to page 123.
TP601
TP602
TP603
TP604
TP605
FP-54
1-622-924-
23
TO VC-24P BOARD FP-54

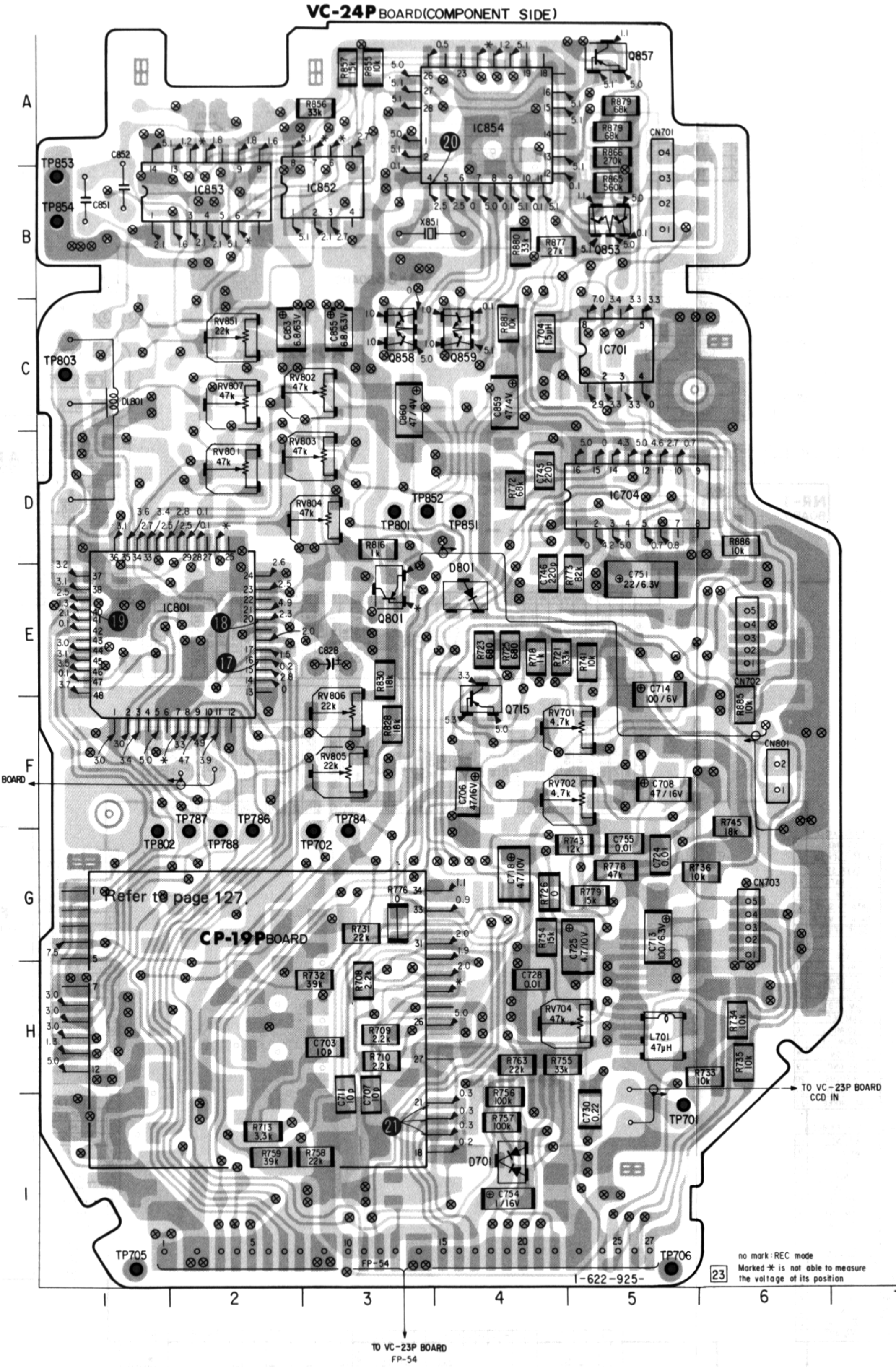
no mark : REC mode

no mark : REC
Marked ✱ is no
the voltage of its

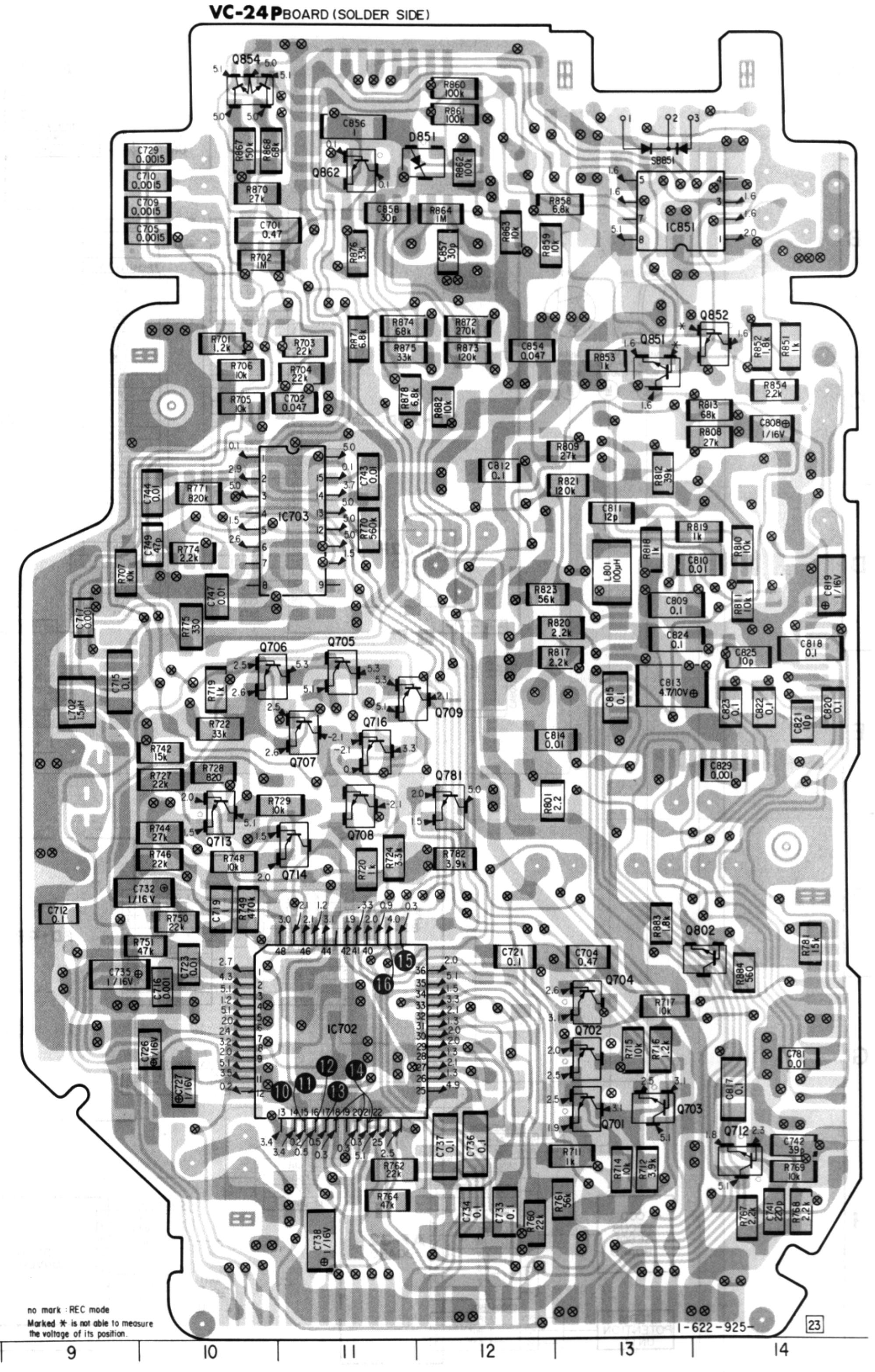

1-622-924-
23
12
13
14

no mark : REC mode
Marked * is not able to measure the voltage of its position.

CN701	A-5
CN702	E-6
CN703	G-6
CN801	F-6
D701	I-4
D801	E-4
D851	A-12
FP-54	I-3
IC701	C-5
IC702	H-11
IC703	D-11
IC704	D-5
IC801	E-2
IC851	B-13
IC852	B-2
IC853	B-2
IC854	A-4
Q701	H-13
Q702	H-13
Q703	H-13
Q704	H-13
Q705	E-11
Q706	E-10
Q707	F-11
Q708	F-11
Q709	E-11
Q712	I-14
Q713	F-10
Q714	F-11
Q715	E-4
Q716	F-11
Q781	F-12
Q801	E-3
Q802	G-14
Q851	C-13
Q852	C-14
Q853	B-5
Q854	A-10
Q857	A-5
Q858	C-3
Q859	C-4
Q862	B-11
RV701	F-4
RV702	F-4
RV704	H-4
RV801	D-2
RV802	C-3
RV803	D-3
RV804	D-3
RV805	F-3
RV806	F-3
RV807	C-2
RV851	C-2
SB851	A-13
TP701	I-5
TP702	G-3
TP705	I-1
TP706	I-5
TP784	G-3
TP786	G-2
TP787	G-2
TP788	G-2
TP801	D-3
TP802	G-1
TP803	C-1
TP851	D-4
TP852	D-3
TP853	B-1
TP854	B-1


VC-24P BOARD(COMPONENT SIDE)
A
B
C
D
E
F
G
H
I
TO VC-23P BOARD
4fsc
Refer to page 127
CP-19P BOARD
TO VC-23P BOARD
CCD IN
TO VC-23P BOARD
FP-54
1-622-925-
23
1
2
3
4
5
6
7
8

no mark : REC mode
Marked * is not able to measure the voltage of its position.


VC-24P BOARD (SOLDER SIDE)
1-622-925-
23
9
10
11
12
13
14

no mark : REC mode
Marked * is not able to measure the voltage of its position.

VC-23P(CCD IMAGER, TIMING/SYNC GENERATOR), VC-24P(CAMERA ENCODER, AGC/IRIS CONTROL) SCHEMATIC DIAGRAM

—Ref. No. VC-23P and VC-24P BOARDS : 1, 000 series—

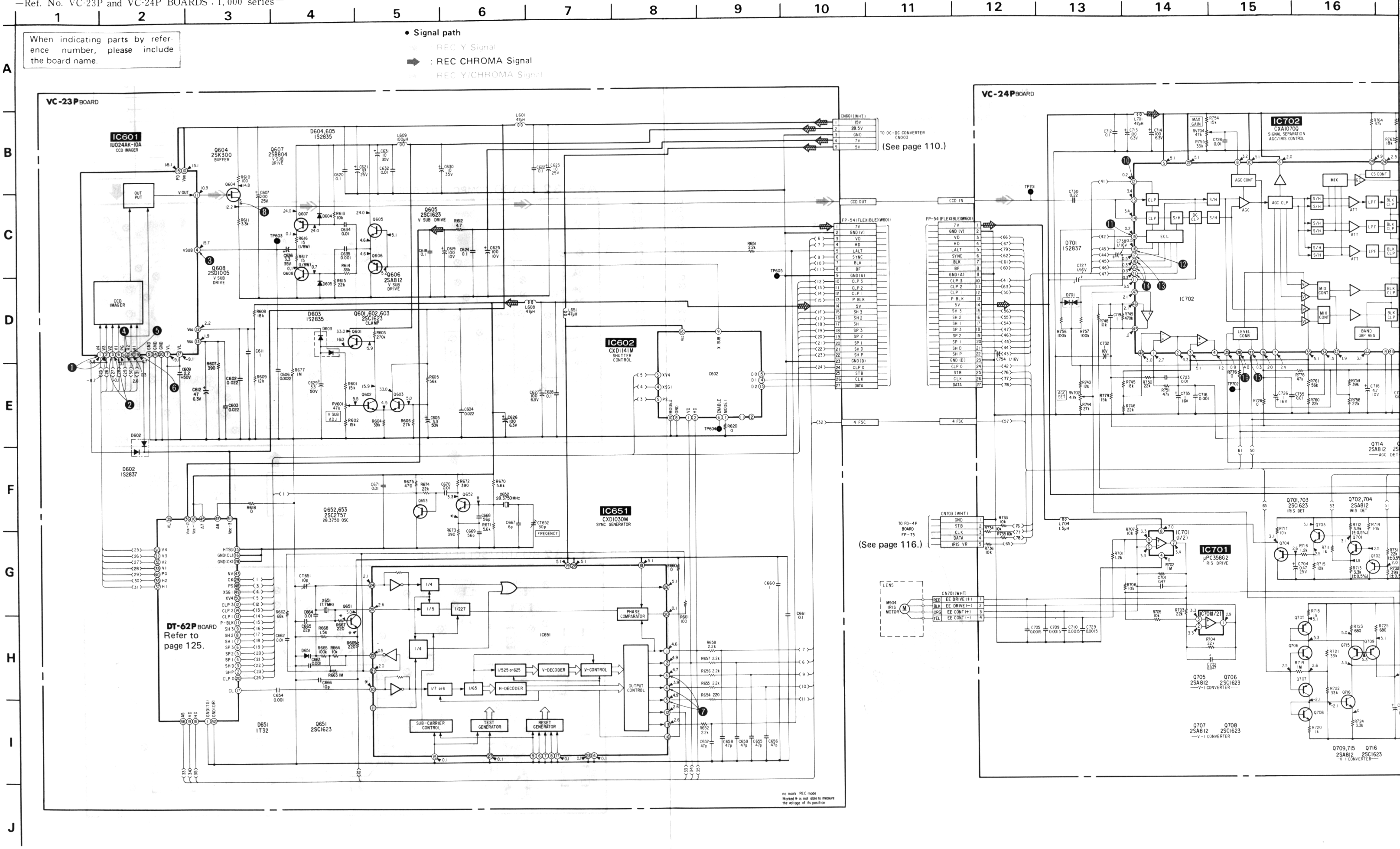
When indicating parts by reference number, please include the board name.

- Signal path

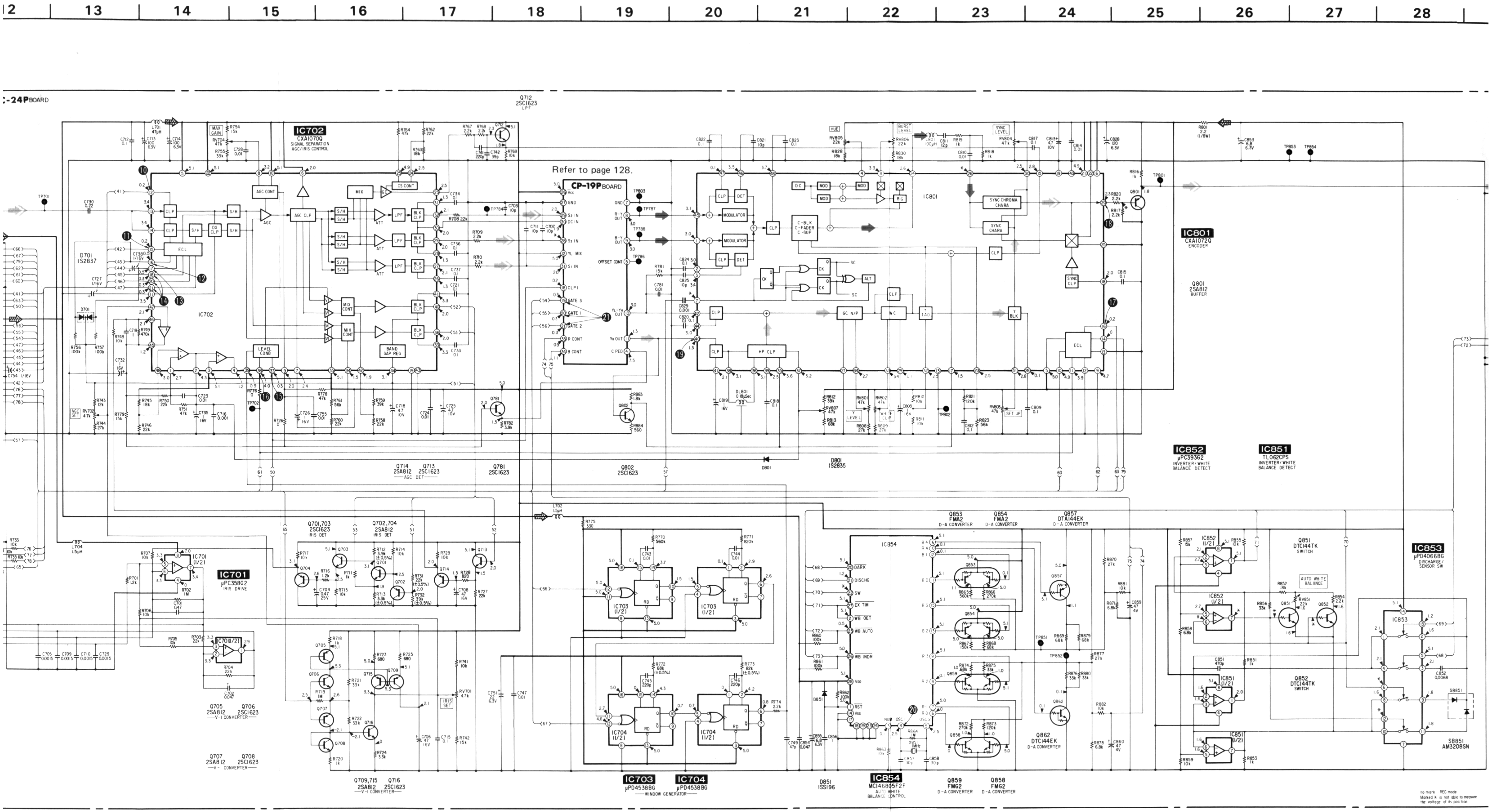
: REC Y Signal

: REC CHROMA Signal

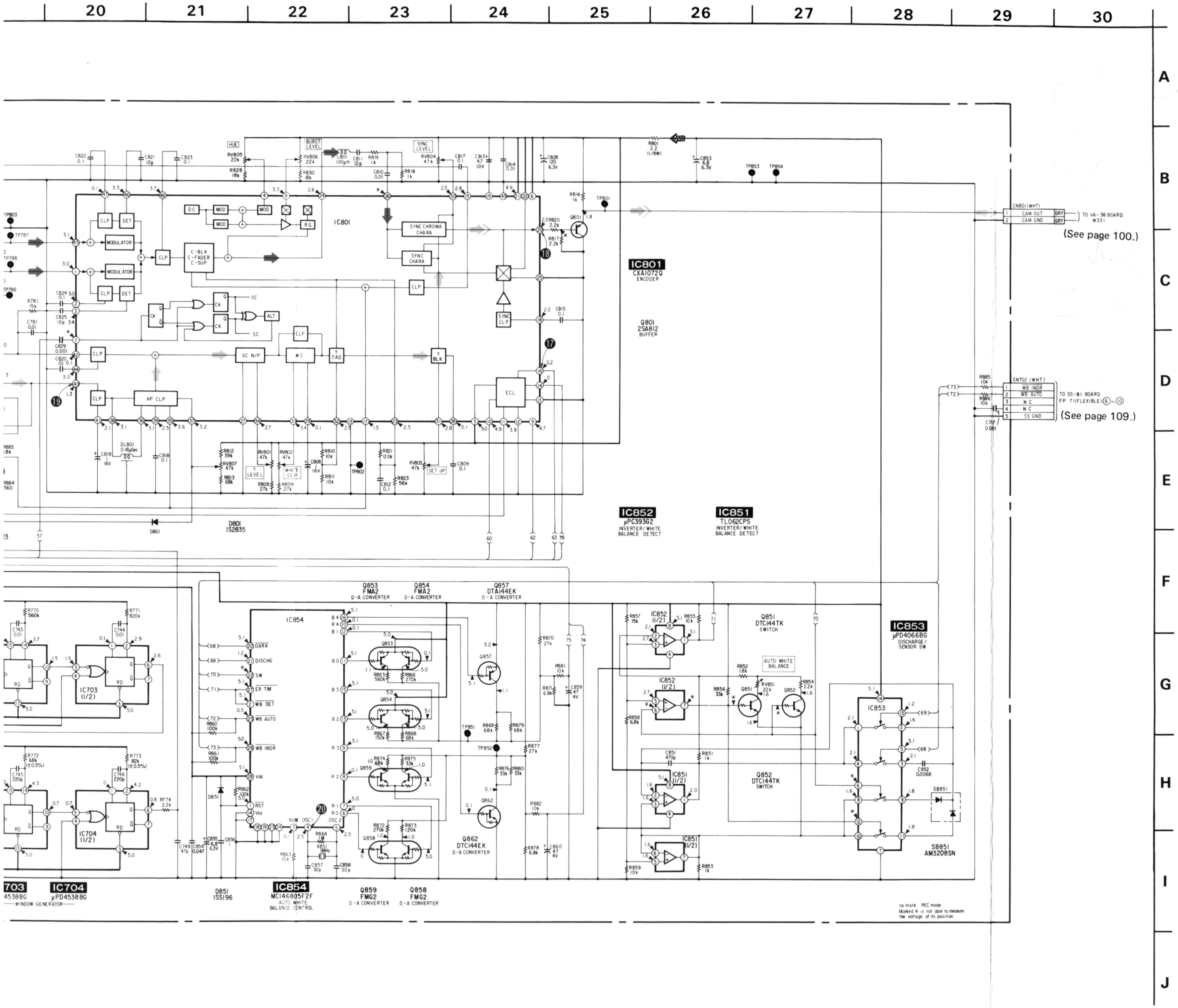
: REC Y/CHROMA Signal



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
VC-23P BOARD
IC601
IU024AK-10A
CCD IMAGER
OUT PUT
CCD IMAGER
Q604 2SK300 BUFFER
Q607 2SB804 V SUB DRIVE
D604,605 1S2835
Q605 2SC1623 V SUB DRIVE
Q606 2SA812 V SUB DRIVE
Q608 2SD1005 V SUB DRIVE
D603 1S2835
Q601,602,603 2SC1623 CLAMP
D602 1S2837
IC602
CXD1141M
SHUTTER CONTROL
IC651
CXD1030M
SYNC GENERATOR
Q652,653 2SC2757 28.3750 OSC
X652 28.3750MHz
FREQUENCY
DT-62P BOARD
Refer to page 125.
D651 1T32
Q651 2SC1623
X651 17.7MHz
PHASE COMPARATOR
1/4
1/5
1/227
1/525 or 625
V-DECODER
V-CONTROL
1/7 or 6
1/65
H-DECODER
OUTPUT CONTROL
SUB-CARRIER CONTROL
TEST GENERATOR
RESET GENERATOR
CN601 (WHT)
15V
28.5V
GND
7V
5V
TO DC-DC CONVERTER CN003
(See page 110.)
CCD OUT
FP-54 (FLEXIBLE)(W601)
7V
GND (V)
VD
HD
LALT
SYNC
BLK
BF
GND (A)
CLP 3
CLP 2
CLP 1
P BLK
5V
SH 3
SH 2
SH 1
SP 3
SP 2
SP 1
SH D
SH P
GND (D)
CLP 0
STB
CLK
DATA
4 FSC
TP601
TP603
TP604
TP605
no mark REC mode
Marked * is not able to measure the voltage of its position
VC-24P BOARD
CCD IN
TP701
TP702
IC702
CXA1070Q
SIGNAL SEPARATION AGC/IRIS CONTROL
MAX GAIN
AGC CONT
AGC
AGC CLP
CLP
S/H
DG CLP
ECL
MIX
MIX CONT
LPF
BLK CLP
ATT
CS CONT
LEVEL COMB
BAND GAP REG
D701 1S2837
AGC SET
Q714 2SA812 AGC DET
Q701,703 2SC1623 IRIS DET
Q702,704 2SA812 IRIS DET
IC701
µPC358G2
IRIS DRIVE
IC701 (1/2)
IC701 (2/2)
CN703 (WHT)
GND
STB
CLK
DATA
IRIS VR
TO FD-4P BOARD FP-75
(See page 116.)
LENS
M904 IRIS MOTOR
CN701 (WHT)
RED
BLK
ORG
YEL
EE DRIVE (+)
EE DRIVE (−)
EE CONT (+)
EE CONT (−)
L704 1.5µH
Q705 2SA812
Q706 2SC1623
V-I CONVERTER
Q707 2SA812
Q708 2SC1623
V-I CONVERTER
Q709,715 2SA812
Q716 2SC1623
V-I CONVERTER


12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
-24P BOARD
IC702
CXA1070Q
SIGNAL SEPARATION
AGC/IRIS CONTROL
Refer to page 128.
CP-19P BOARD
IC801
CXA1072Q
ENCODER
Q801
2SA812
BUFFER
Q712
2SC1623
LPF
Q714 2SA812
Q713 2SC1623
AGC DET
Q781
2SC1623
Q802
2SC1623
D801
1S2835
D701
1S2837
IC852
μPC393G2
INVERTER/WHITE BALANCE DETECT
IC851
TL062CPS
INVERTER/WHITE BALANCE DETECT
IC701
μPC358G2
IRIS DRIVE
Q701,703
2SC1623
IRIS DET
Q702,704
2SA812
IRIS DET
Q705 2SA812
Q706 2SC1623
V-I CONVERTER
Q707 2SA812
Q708 2SC1623
V-I CONVERTER
Q709,715 2SA812
Q716 2SC1623
V-I CONVERTER
IC703
μPD4538BG
IC704
μPD4538BG
WINDOW GENERATOR
D851
1SS196
IC854
MC146805F2F
AUTO WHITE BALANCE CONTROL
Q853
FMA2
D-A CONVERTER
Q854
FMA2
D-A CONVERTER
Q857
DTA144EK
D-A CONVERTER
Q862
DTC144EK
D-A CONVERTER
Q859
FMG2
D-A CONVERTER
Q858
FMG2
D-A CONVERTER
Q851
DTC144TK
SWITCH
Q852
DTC144TK
SWITCH
AUTO WHITE BALANCE
IC853
μPD4066BG
DISCHARGE/SENSOR SW
S851
AM3208SN

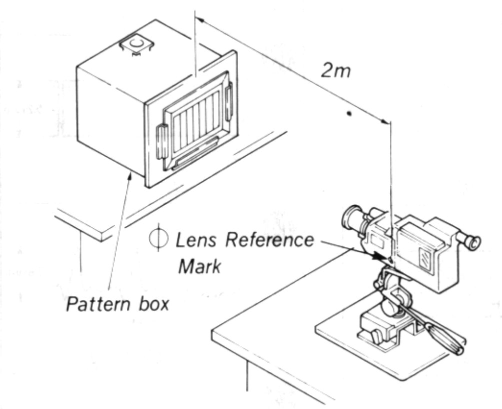
no mark : REC mode
Marked * : is not able to measure the voltage of its position


20
21
22
23
24
25
26
27
28
29
30
A
B
C
D
E
F
G
H
I
J
IC801
IC801 CXA1072Q ENCODER
Q801 2SA812 BUFFER
MODULATOR
CLP
DET
C-BLK C-FADER C-SUP
SYNC CHROMA CHARA
SYNC CHARA
SYNC CLP
HP CLP
GC N/P
WC
Y TAD
Y BLK
ECL
HUE
BURST LEVEL
SYNC LEVEL
Y LEVEL
WHITE CLIP
SET UP
CN801 (WHT)
CAM OUT
CAM GND
TO VA-36 BOARD W331
(See page 100.)
CN702 (WHT)
WB INDR
WB AUTO
N.C
N.C
SS GND
TO SS-81 BOARD FP 71(FLEXIBLE) ⑥~⑩
(See page 109.)
D801 1S2835
IC852 μPC39362 INVERTER/WHITE BALANCE DETECT
IC851 TL062CPS INVERTER/WHITE BALANCE DETECT
IC853 μPD4066BG DISCHARGE/SENSOR SW
IC854
IC854 MC146805F2F AUTO WHITE BALANCE CONTROL
Q853 FMA2 D-A CONVERTER
Q854 FMA2 D-A CONVERTER
Q857 DTA144EK D-A CONVERTER
Q862 DTC144EK D-A CONVERTER
Q859 FMG2 D-A CONVERTER
Q858 FMG2 D-A CONVERTER
Q851 DTC144TK SWITCH
Q852 DTC144TK SWITCH
AUTO WHITE BALANCE
SB851 AM3208SN
D851 1SS196
IC703 (1/2)
IC704 (1/2)
IC703
IC704 μPD4538BG
WINDOW GENERATOR
DARK
DISCHG
SW
EX TIM
WB DET
WB AUTO
WB INDR
TP801
TP802
TP851
TP852
TP853
TP854
no mark: REC mode
Marked *: is not able to measure the voltage of its position

Note:

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted.
  50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ▭ : panel designation.
- ▭ : Nonflammable resistor
- ── : B+ bus.
- ⇨ : IN/OUT direction of B+, B− bus.
- ▭ : adjustment for repair.
- Voltage and waveform measuring conditions:
  (1) Sample object: Pattern box color bars.
  (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

1. Connection


2m
Lens Reference Mark
Pattern box

2. Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.

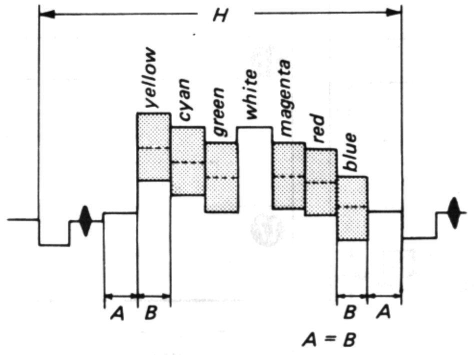

H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A
A = B

Fig. a Camera output waveform of TP801 on VC-24P board.

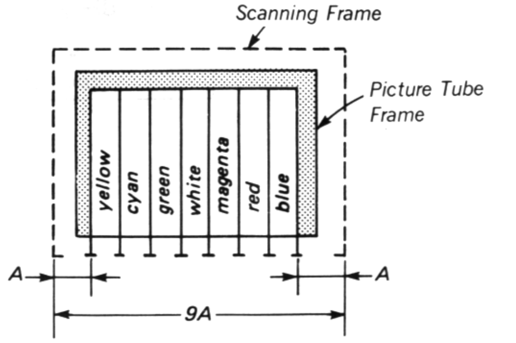
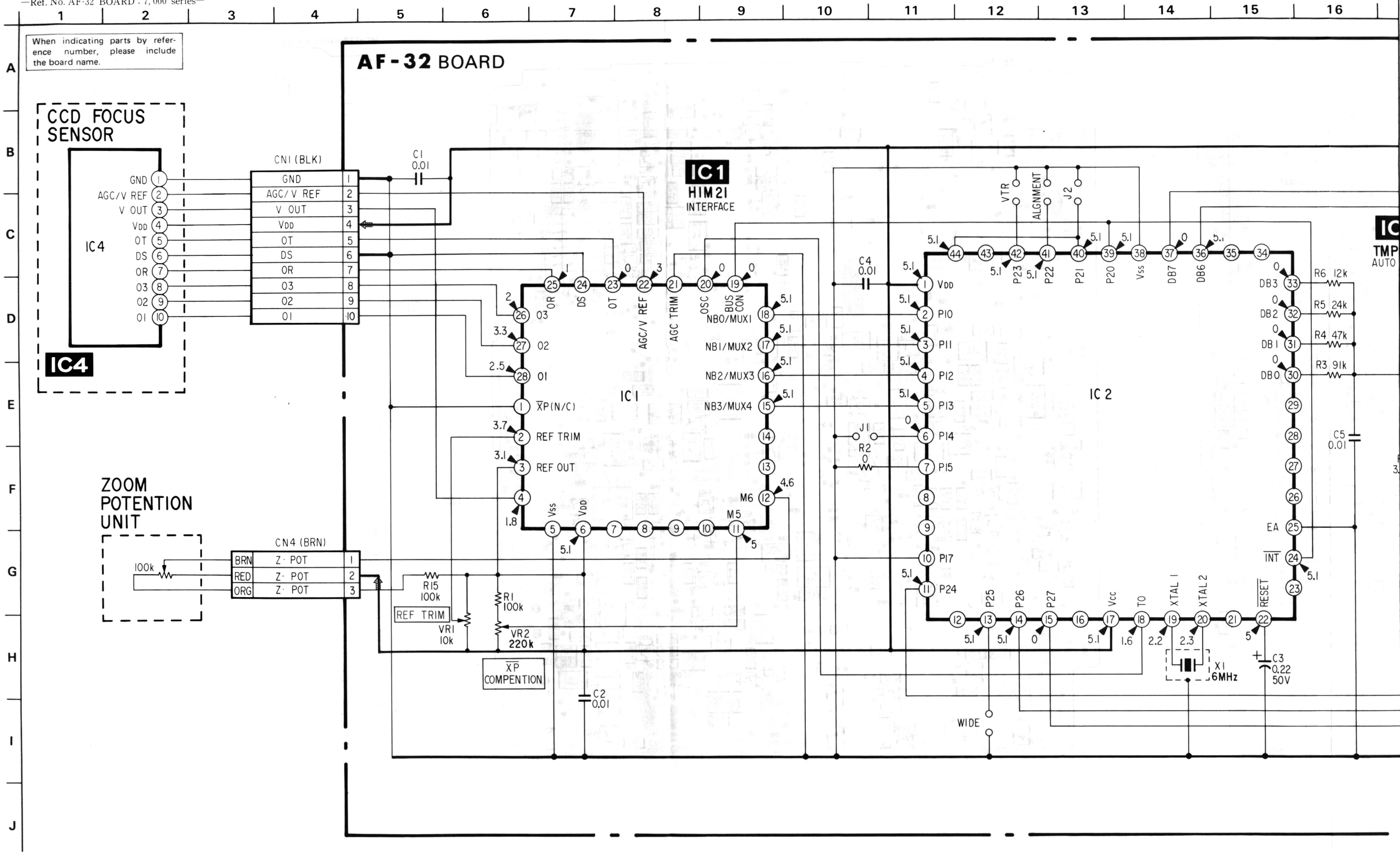

Scanning Frame
Picture Tube Frame
yellow
cyan
green
white
magenta
red
blue
A
A
9A

Fig. b Picture of TV monitor screen

AF-32(AUTO FOCUS CONTROL) SCHEMATIC DIAGRAM

—Ref. No. AF-32 BOARD : 7, 000 series—

When indicating parts by reference number, please include the board name.


1
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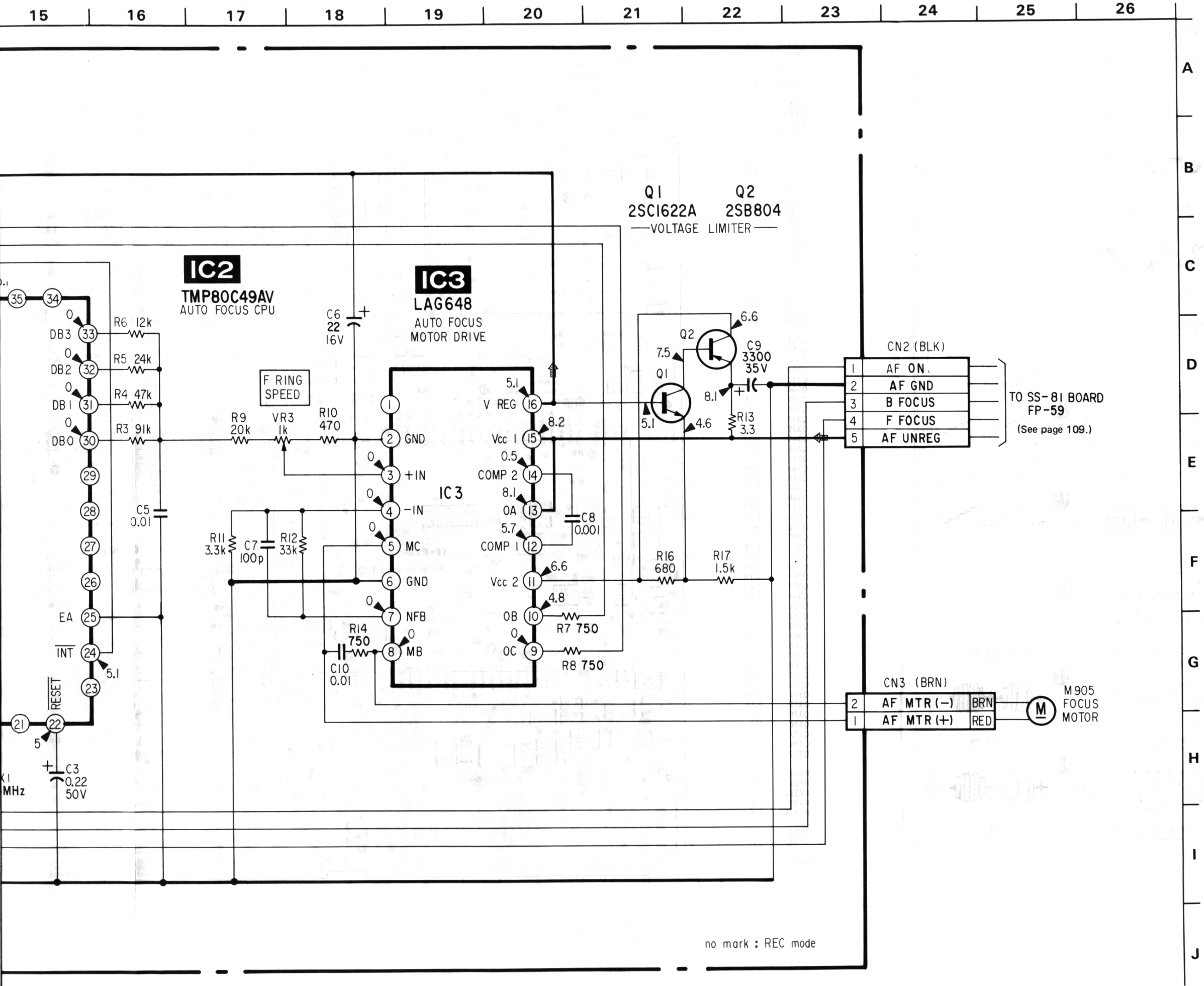
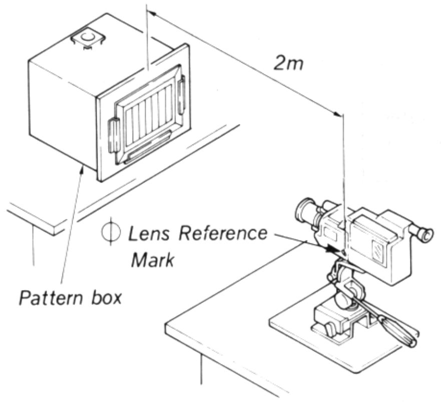
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
AF-32 BOARD
CCD FOCUS SENSOR
IC4
GND
AGC/V REF
V OUT
VDD
OT
DS
OR
03
02
01
CN1 (BLK)
C1 0.01
IC1
HIM21
INTERFACE
IC 1
XP(N/C)
REF TRIM
REF OUT
NB0/MUX1
NB1/MUX2
NB2/MUX3
NB3/MUX4
M6
M5
Vss
VDD
AGC/V REF
AGC TRIM
OSC
BUS CON
ZOOM POTENTION UNIT
100k
CN4 (BRN)
BRN
RED
ORG
Z· POT
R15 100k
REF TRIM
VR1 10k
R1 100k
VR2 220k
XP COMPENTION
C2 0.01
C4 0.01
J1
R2 0
IC 2
P10
P11
P12
P13
P14
P15
P17
P24
P25
P26
P27
Vcc
T0
XTAL 1
XTAL 2
RESET
X1 6MHz
C3 0.22 50V
WIDE
VTR
ALGNMENT
J2
P23
P22
P21
P20
DB7
DB6
DB3
DB2
DB1
DB0
EA
INT
R6 12k
R5 24k
R4 47k
R3 91k
C5 0.01
IC
TMP
AUTO


15
16
17
18
19
20
21
22
23
24
25
26
A
B
C
D
E
F
G
H
I
J
IC2
TMP80C49AV
AUTO FOCUS CPU
IC3
LAG648
AUTO FOCUS
MOTOR DRIVE
Q1 2SC1622A
Q2 2SB804
—VOLTAGE LIMITER—
DB3
DB2
DB1
DB0
EA
INT
RESET
R6 12k
R5 24k
R4 47k
R3 91k
C5 0.01
C3 0.22 50V
MHz
F RING SPEED
R9 20k
VR3 1k
R10 470
C6 22 16V
R11 3.3k
C7 100p
R12 33k
R14 750
C10 0.01
GND
+IN
-IN
MC
NFB
MB
V REG
Vcc 1
COMP 2
OA
COMP 1
Vcc 2
OB
OC
IC3
C8 0.001
R7 750
R8 750
C9 3300 35V
R13 3.3
R16 680
R17 1.5k
CN2 (BLK)
AF ON
AF GND
B FOCUS
F FOCUS
AF UNREG
TO SS-81 BOARD FP-59
(See page 109.)
CN3 (BRN)
AF MTR(−)
AF MTR(+)
BRN
RED
M905 FOCUS MOTOR
no mark : REC mode

Note:

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted.
  50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ▭ : panel designation.
- ▭ : Nonflammable resistor
- —— : B+ bus.
- ⇨ : IN/OUT direction of B+, B− bus.
- ▭ : adjustment for repair.
- Voltage and waveform measuring conditions:
  (1) Sample object: Pattern box color bars.
  (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

1. Connection


2m
Lens Reference Mark
Pattern box

2. Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.

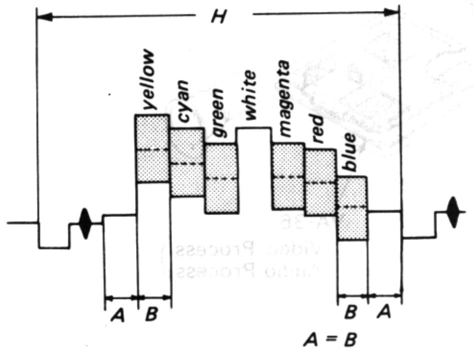

H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A
A = B

Fig. a Camera output waveform of TP801 on VC-24P board.

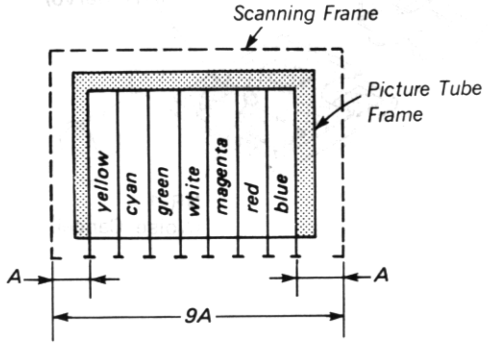

Scanning Frame
Picture Tube Frame
yellow
cyan
green
white
magenta
red
blue
A
A
9A

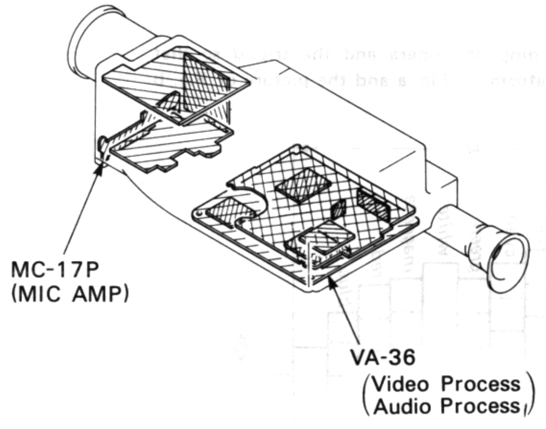
Fig. b Picture of TV monitor screen

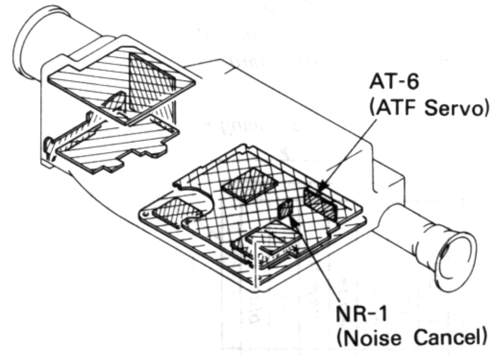
Note:

- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ░ Pattern of the rear side.
- Digital transistor (VA-36 board: Q252, Q336, Q337, Q340, Q342, Q346, Q350, Q351, Q353, Q358, Q363, Q364, Q376): transistor with resistor.
  Refer to the VA-36 board schematic diagram for digital transistor.

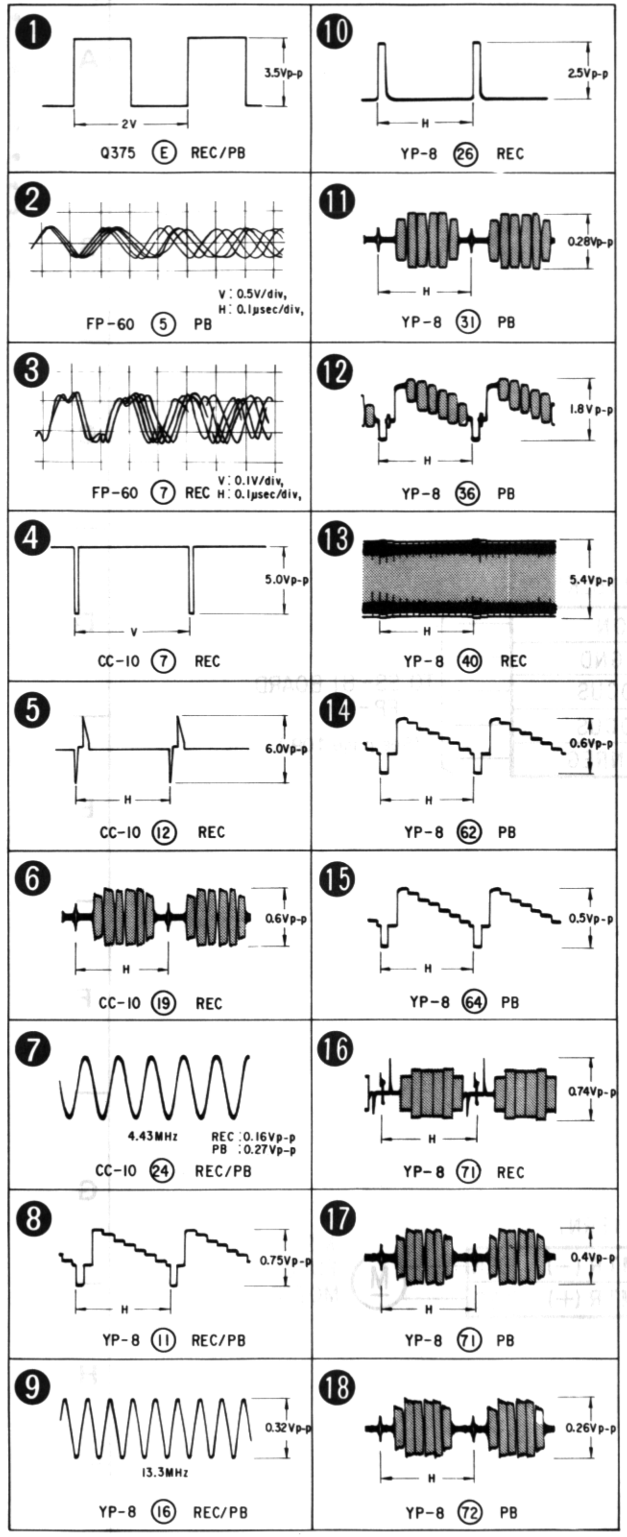
Caution:
Pattern face side: (Solder Side) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side) Parts on the parts face side seen from the parts face are indicated.

When indicating parts by reference number, please include the board name.


MC-17P
(MIC AMP)
VA-36
(Video Process
Audio Process)


AT-6
(ATF Servo)
NR-1
(Noise Cancel)

VA-36 BOARD

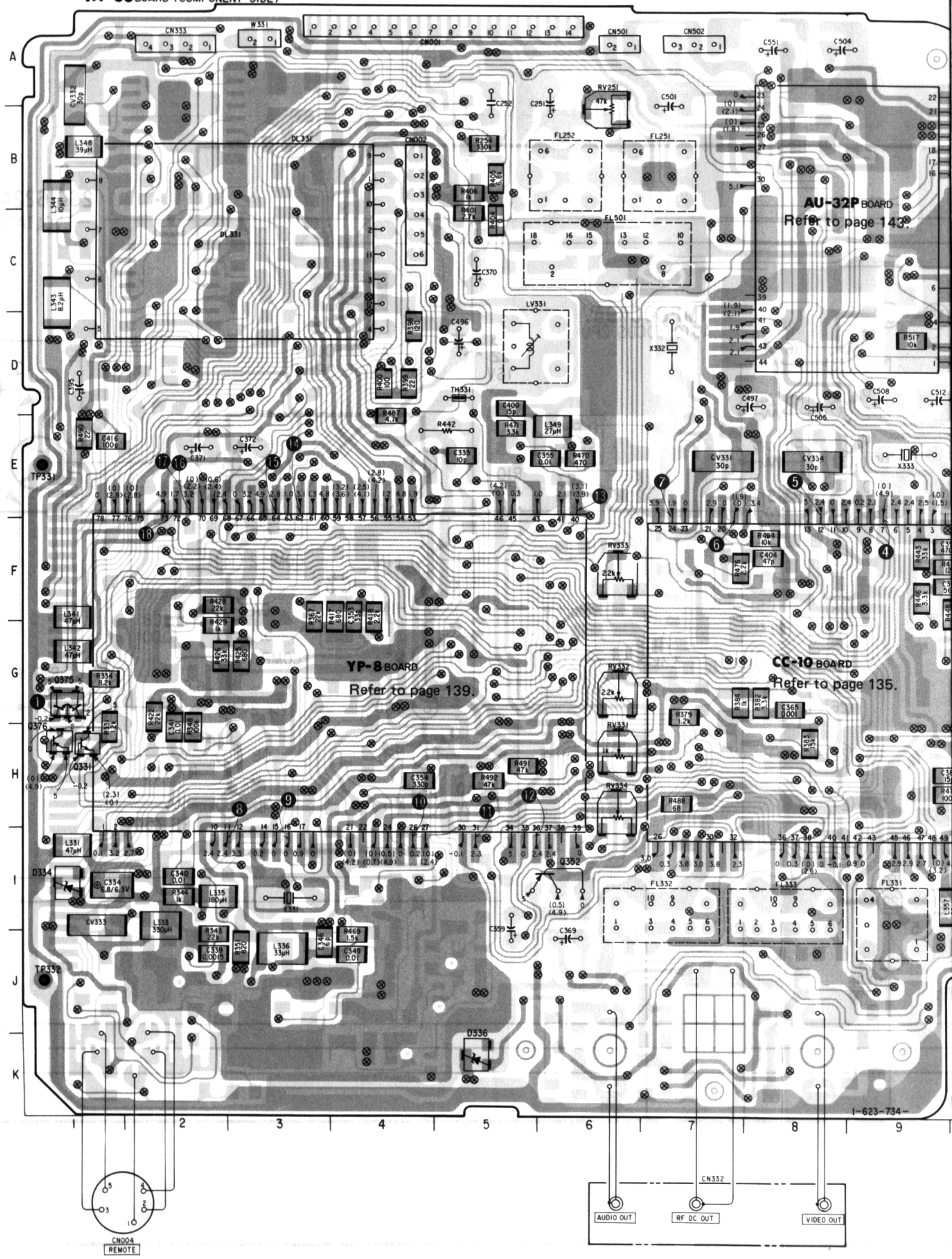


VA-36(VIDEO PROCESS, AUDIO PROCESS), MC-17P (MIC AMP), NR-1(NOISE CANCEL), AT-6(ATF SERVO) PRIN

—Ref. No. MC-17P BOARD : 1,000 series, VA-36, NR-1 and AT-6 BOARDS : 2,000 series—

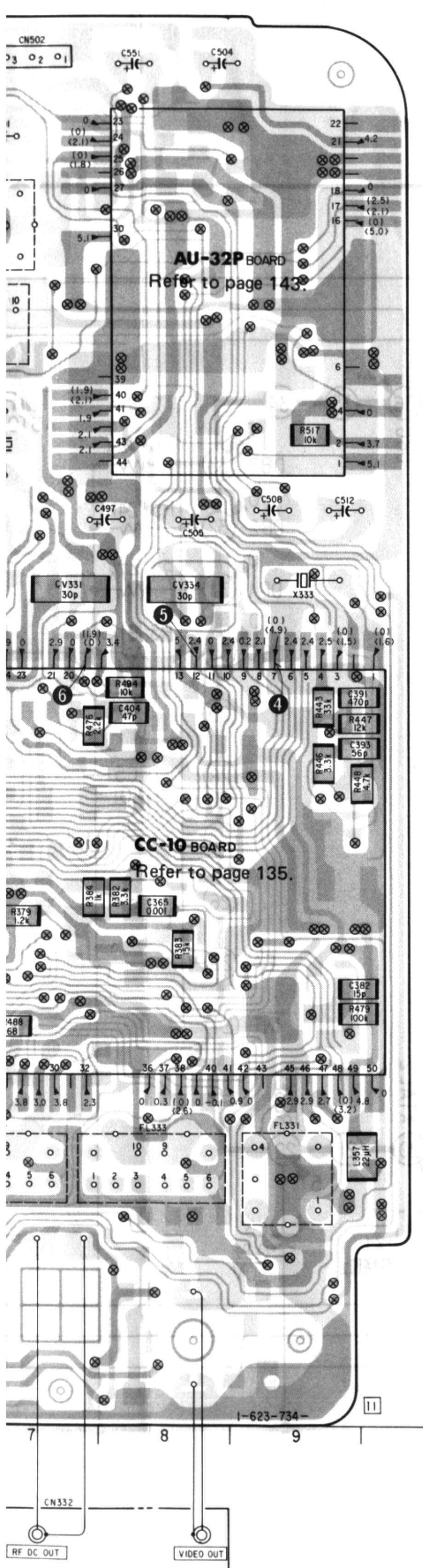
CN001	A-4
CN002	B-4
CN333	A-2
CN501	A-6
CN502	A-7
CV331	E-7
CV332	A-1
CV333	I-1
CV334	E-8
D331	K-19
D332	J-19
D333	J-20
D334	I-1
D335	J-18
D336	K-5
D338	D-20
D339	J-13
D340	K-13
D341	J-14
D342	J-16
D343	K-16
D344	A-20
D501	A-13
IC331	G-19
IC332	C-16
IC333	B-19
Q251	B-16
Q252	A-17
Q331	H-1
Q332	I-20
Q333	H-19
Q334	H-18
Q335	I-19
Q336	I-18
Q337	H-18
Q339	J-17
Q340	H-17
Q341	H-17
Q342	I-17
Q343	E-16
Q346	H-13
Q347	G-15
Q348	H-14
Q349	G-13
Q350	F-15
Q351	H-15
Q352	I-6
Q353	D-18
Q354	C-17
Q356	B-19
Q357	B-18
Q358	G-20
Q359	F-18
Q361	F-18
Q362	F-20
Q363	G-18
Q364	F-17
Q366	G-12
Q367	D-19
Q368	C-19
Q369	K-14
Q370	J-15
Q371	K-14
Q373	E-14
Q375	G-1
Q376	H-1
Q377	F-14
Q378	H-12
Q379	E-13
RV251	A-6
RV331	H-6
RV332	G-6
RV333	F-6
RV334	H-6
TP331	E-1
TP332	J-1
W331	A-3

VA-36 BOARD (COMPONENT SIDE)

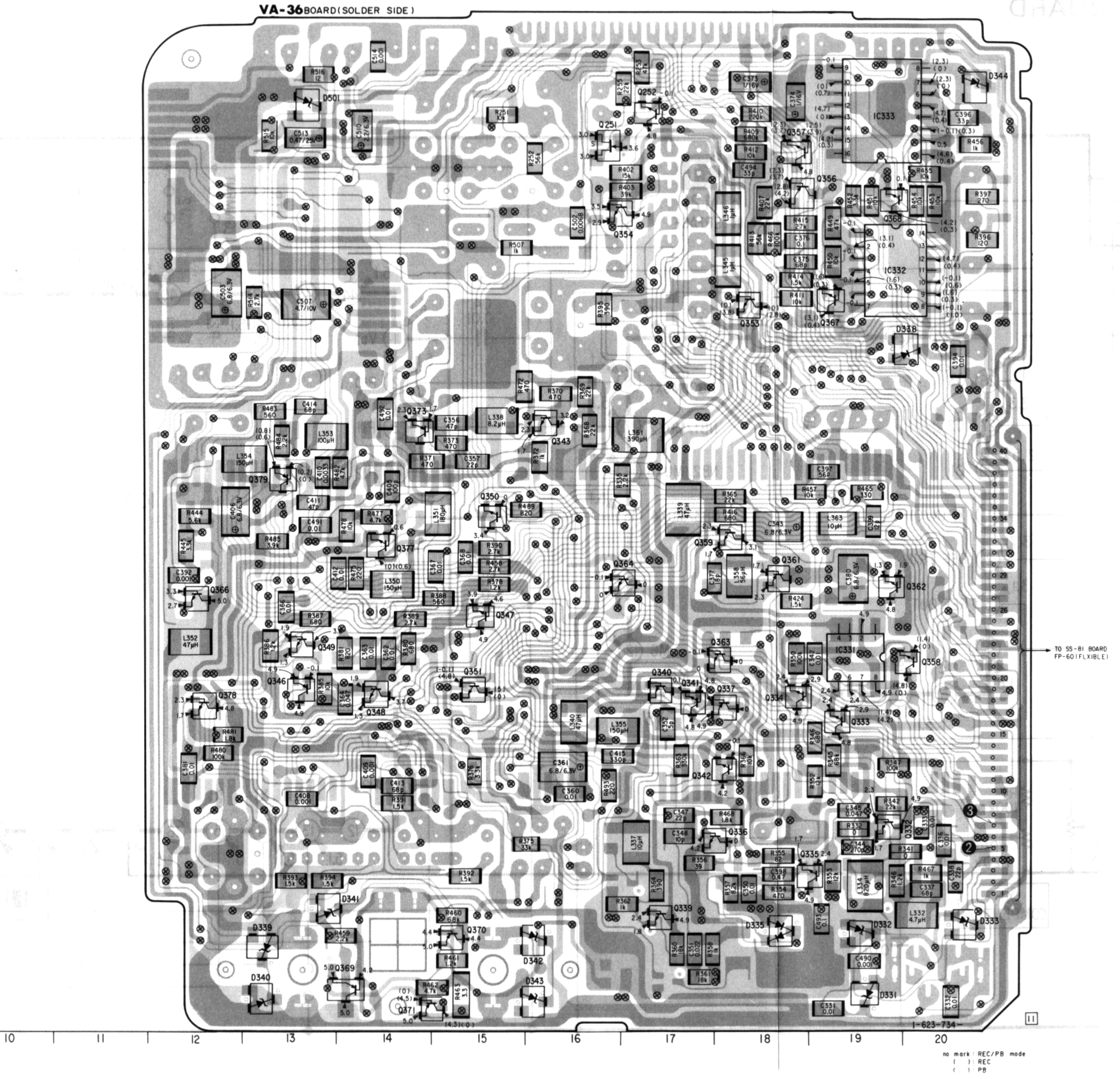

AU-32P BOARD
Refer to page 143.
YP-8 BOARD
Refer to page 139.
CC-10 BOARD
Refer to page 135.
CN001
CN002
CN333
W331
CN501
CN502
CV332
CV331
CV334
CV333
RV251
RV331
RV332
RV333
RV334
TP331
TP332
Q375
Q376
Q331
D334
D336
Q352
X332
X333
LV331
FL251
FL252
FL331
FL332
FL501
DL331
TH331
CN332
AUDIO OUT
RF DC OUT
VIDEO OUT
CN004
REMOTE
A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
6
7
8
9
1-623-734-

ANCEL), AT-6(ATF SERVO) PRINTED WIRING BOARDS

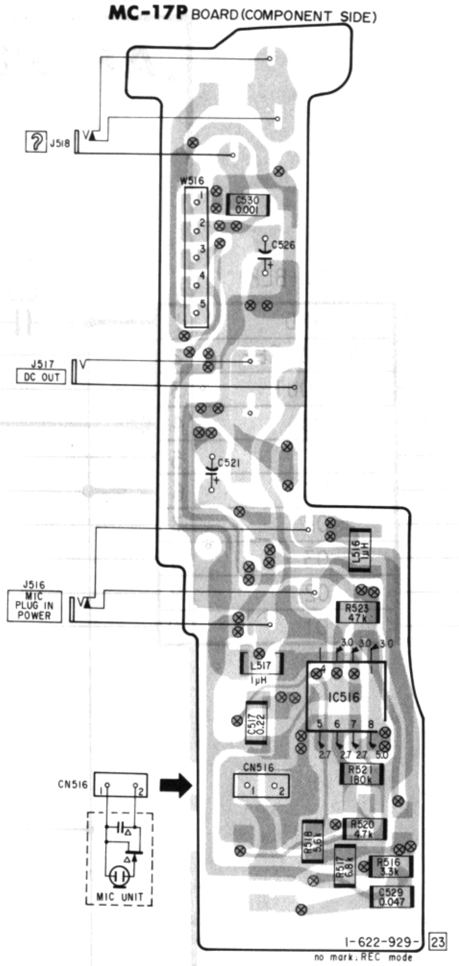
es—


AU-32P BOARD
Refer to page 143.
CC-10 BOARD
Refer to page 135.
CN502
CN332
RF DC OUT
VIDEO OUT

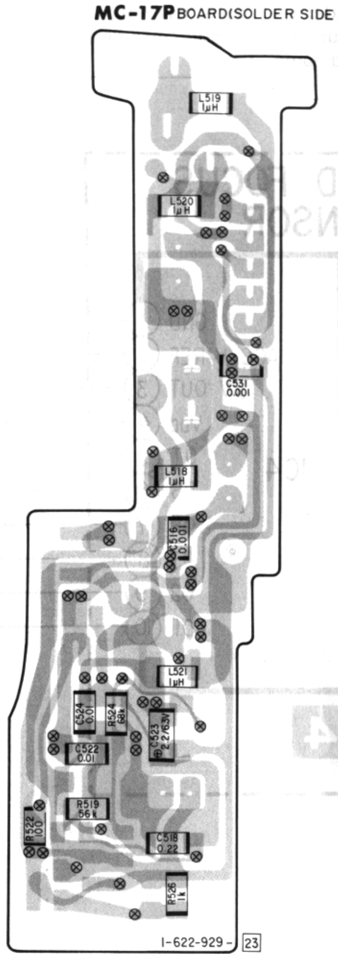
VA-36 BOARD (SOLDER SIDE)


IC331
IC332
IC333
TO SS-81 BOARD FP-601(FLEXIBLE)
1-623-734-
no mark : REC/PB mode
( ) : REC
< > : PB

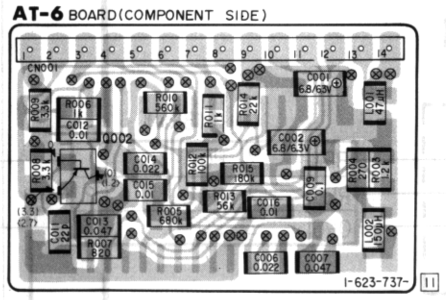
MC-17P BOARD (COMPONENT SIDE)


J518
J517 DC OUT
J516 MIC PLUG IN POWER
CN516
MIC UNIT
IC516
1-622-929-
no mark : REC mode

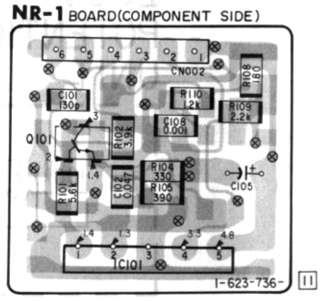
MC-17P BOARD (SOLDER SIDE)



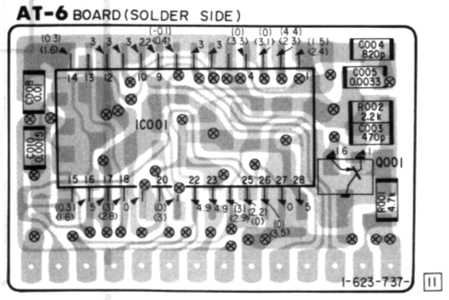
AT-6 BOARD (COMPONENT SIDE)


CN001
Q002
1-623-737-

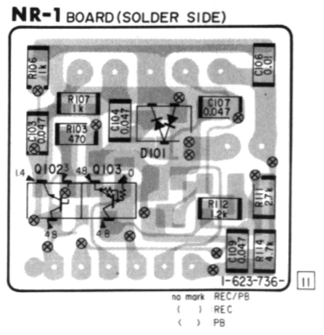
NR-1 BOARD (COMPONENT SIDE)


CN002
Q101
IC101
1-623-736-

AT-6 BOARD (SOLDER SIDE)


IC001
Q001
1-623-737-

NR-1 BOARD (SOLDER SIDE)


Q102
Q103
D101
1-623-736-
no mark : REC/PB
( ) : REC
< > : PB

VA-36(VIDEO PROCESS, AUDIO PROCESS), MC-17P(MIC AMP), NR-1(NOISE CANCEL), AT-6(ATF SERVO) SCHEMATIC DIAGRAM

—Ref. No. MC-17P BOARD : 1, 000 series, VA-36, NR-1 and AT-6 BOARDS : 2, 000 series—

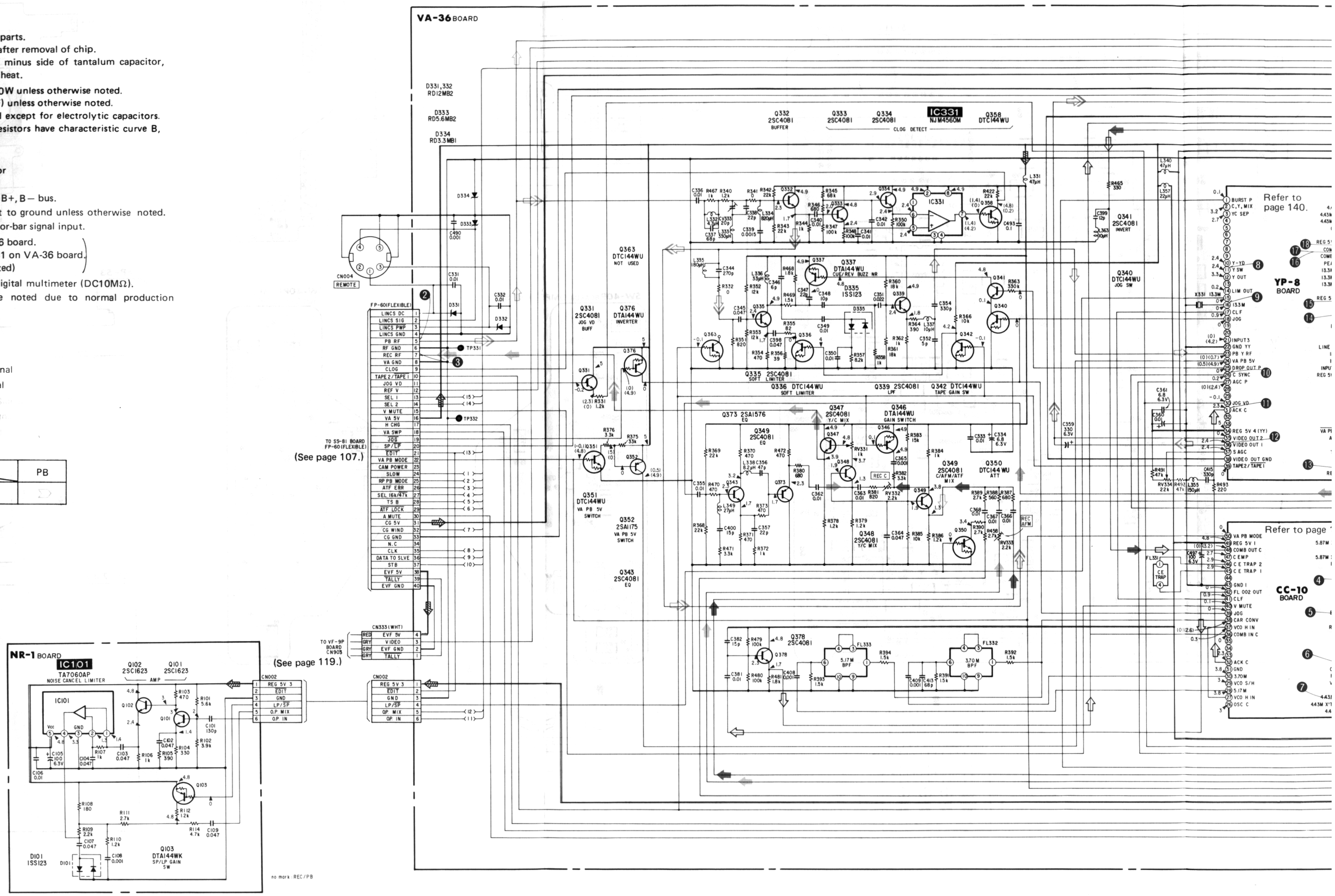
Note:

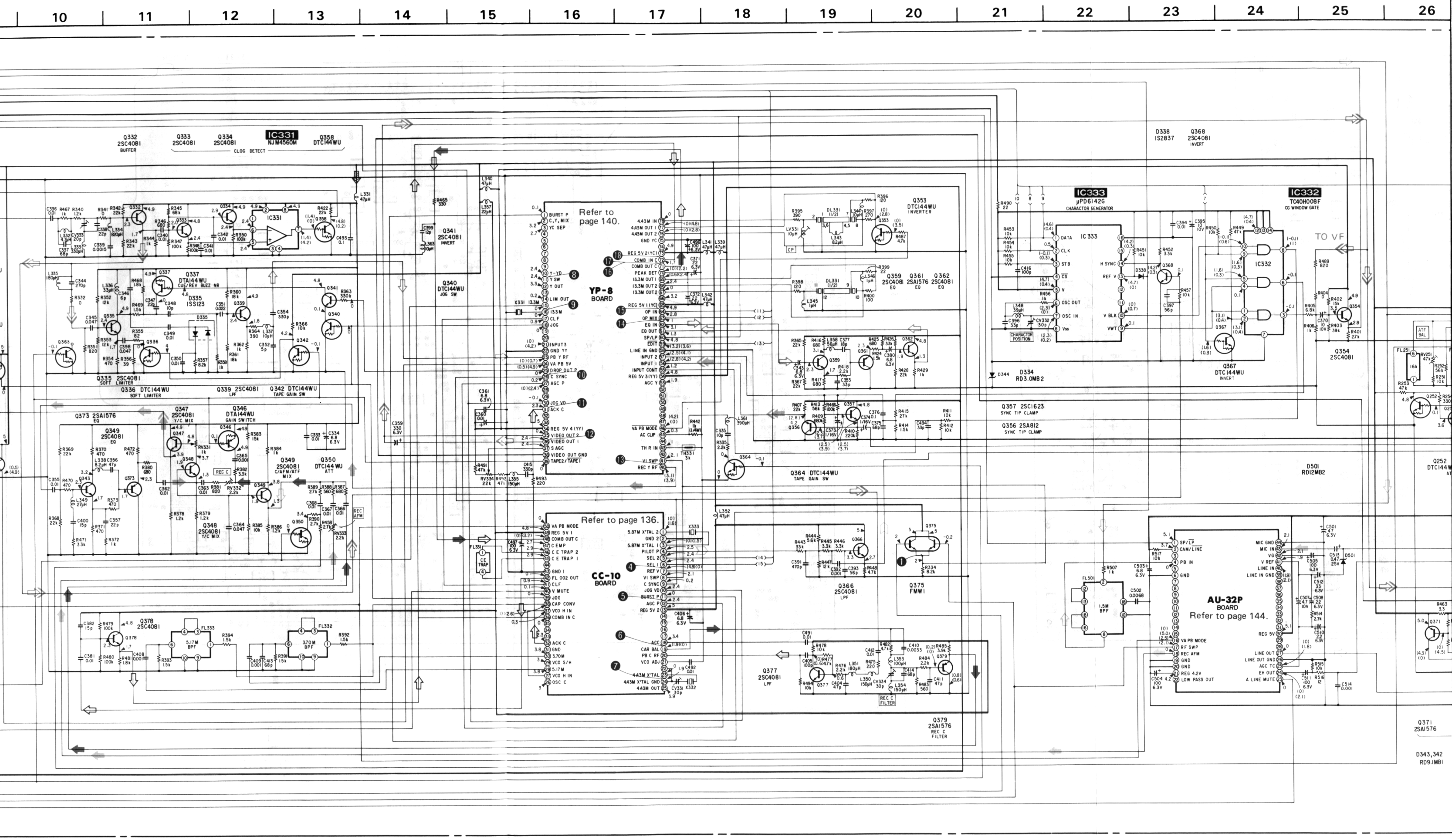
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted.
  50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ▭ : panel designation.
- ▭ : Nonflammable resistor
- —— : B+ bus.
- ⇨ : IN/OUT direction of B+, B– bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
  (Remove the W331 on VA-36 board.
  Input point: Pin ① of W331 on VA-36 board.
  (75Ω terminated))
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- **Signal path**

➡ : REC CHROMA Signal

⇨ : PB CHROMA Signal

	PB
Ref. signal	⇨


VA-36 BOARD
D331,332 RD12MB2
D333 RD5.6MB2
D334 RD3.3MB1
CN004
REMOTE
FP-60(FLEXIBLE)
LINCS DC 1
LINCS SIG 2
LINCS PWP 3
LINCS GND 4
PB RF 5
RF GND 6
REC RF 7
VA GND 8
CLOG 9
TAPE 2/TAPE 1 10
JOG VD 11
REF V 12
SEL 1 13
SEL 2 14
V MUTE 15
VA 5V 16
H CHG 17
VA SWP 18
JOG 19
SP/LP 20
EDIT 21
VA PB MODE 22
CAM POWER 23
SLOW 24
RP PB MODE 25
ATF ERR 26
SEL 16k/47k 27
TS B 28
ATF LOCK 29
A MUTE 30
CG 5V 31
CG WIND 32
CG GND 33
N.C 34
CLK 35
DATA TO SLVE 36
STB 37
EVF 5V 38
TALLY 39
EVF GND 40
TO SS-81 BOARD FP-60(FLEXIBLE)
(See page 107.)
CN333(WHT)
RED EVF 5V 4
GRY VIDEO 3
GRY EVF GND 2
GRY TALLY 1
TO VF-9P BOARD CN903
(See page 119.)
TP331
TP332
Q332 2SC4081 BUFFER
Q333 2SC4081
Q334 2SC4081
IC331 NJM4560M
Q358 DTC144WU
CLOG DETECT
Q363 DTC144WU NOT USED
Q331 2SC4081 JOG VD BUFF
Q376 DTA144WU INVERTER
Q337 DTA144WU CUE/REV BUZZ NR
D335 1SS123
Q335 2SC4081 SOFT LIMITER
Q336 DTC144WU SOFT LIMITER
Q339 2SC4081 LPF
Q342 DTC144WU TAPE GAIN SW
Q341 2SC4081 INVERT
Q340 DTC144WU JOG SW
Q373 2SA1576 EQ
Q347 2SC4081 Y/C MIX
Q346 DTA144WU GAIN SWITCH
Q349 2SC4081 C/AFM/ATF MIX
Q350 DTC144WU ATT
Q351 DTC144WU VA PB 5V SWITCH
Q352 2SA1175 VA PB 5V SWITCH
Q343 2SC4081 EQ
Q348 2SC4081 Y/C MIX
REC C
REC AFM
Q378 2SC4081
FL333 5.17M BPF
FL332 3.70M BPF
FL331 CE TRAP
X331 13.3M
Refer to page 140.
YP-8 BOARD
BURST P
C,Y, MIX
YC SEP
Y-YD
Y SW
Y OUT
LIM OUT
13.3M
CLF
JOG
INPUT3
GND YY
PB Y RF
VA PB 5V
DROP OUT P
C SYNC
AGC P
JOG VD
ACK C
REG 5V 4 (YY)
VIDEO OUT 2
VIDEO OUT 1
S AGC
VIDEO OUT GND
TAPE2/TAPE1
Refer to page
CC-10 BOARD
VA PB MODE
REG 5V 1
COMB OUT C
C EMP
C E TRAP 2
C E TRAP 1
GND 1
FL 002 OUT
CLF
V MUTE
JOG
CAR CONV
VCO H IN
COMB IN C
ACK C
GND
3.70M
VCO S/H
5.17M
VCO H IN
OSC C
NR-1 BOARD
IC101 TA7060AP NOISE CANCEL LIMITER
IC101
Q102 2SC1623
Q101 2SC1623
AMP
Q103 DTA144WK SP/LP GAIN SW
D101 1SS123
CN002
REG 5V 3 1
EDIT 2
GND 3
LP/SP 4
OP MIX 5
OP IN 6
no mark : REC/PB


10
11
12
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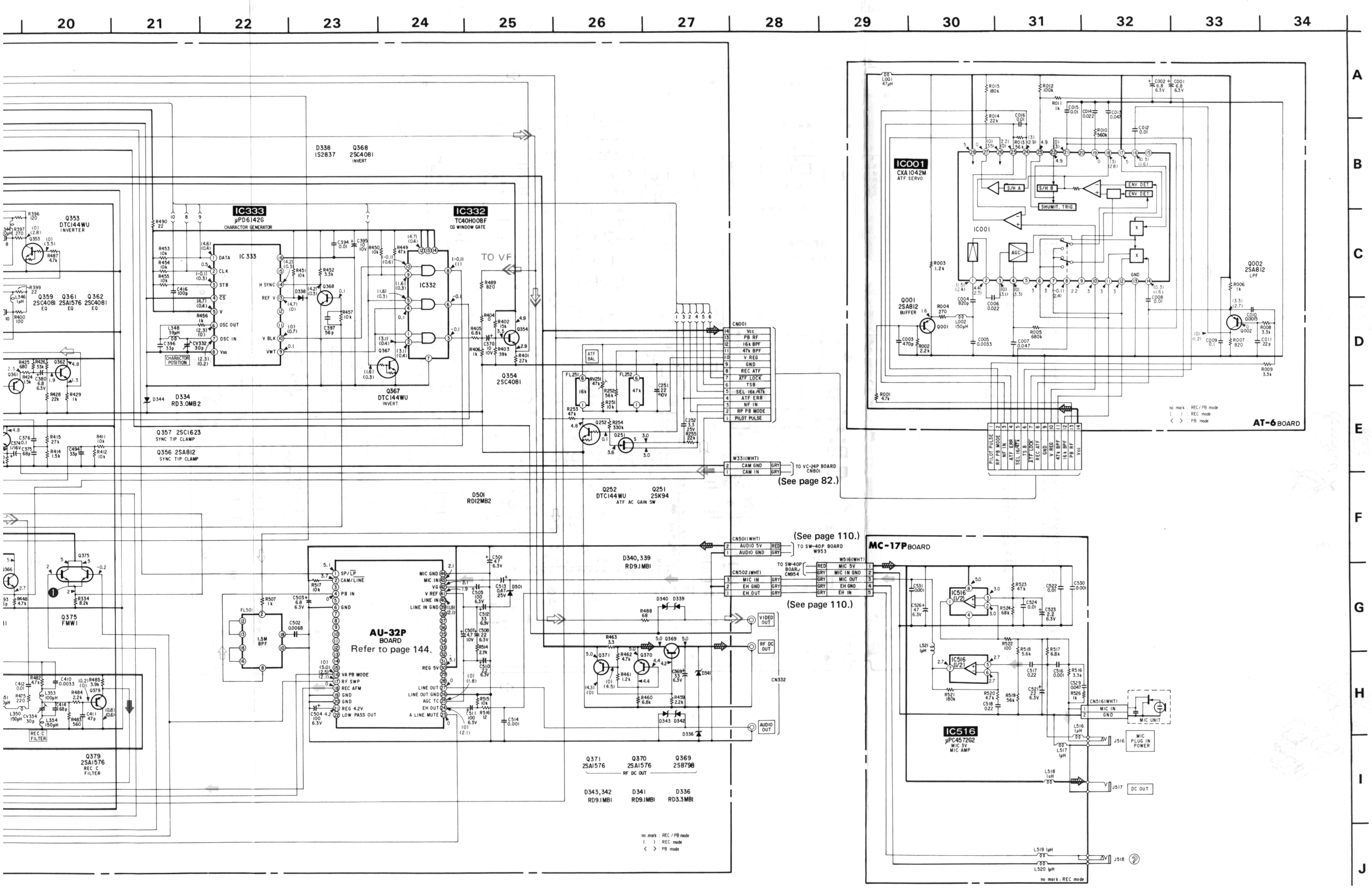
14
15
16
17
18
19
20
21
22
23
24
25
26
Q332 2SC4081 BUFFER
Q333 2SC4081
Q334 2SC4081
CLOG DETECT
IC331 NJM4560M
Q358 DTC144WU
Q337 DTA144WU CUE/REV BUZZ NR
D335 1SS123
Q341 2SC4081 INVERT
Q340 DTC144WU JOG SW
Q335 2SC4081 SOFT LIMITER
Q336 DTC144WU SOFT LIMITER
Q339 2SC4081 LPF
Q342 DTC144WU TAPE GAIN SW
Q373 2SA1576 EQ
Q347 2SC4081 Y/C MIX
Q346 DTA144WU GAIN SWITCH
Q349 2SC4081 EQ
Q349 2SC4081 C/AFM/ATF MIX
Q350 DTC144WU ATT
Q348 2SC4081 Y/C MIX
REC C
REC AFM
Q378 2SC4081
FL333 5.17M BPF
FL332 3.70M BPF
YP-8 BOARD
Refer to page 140.
CC-10 BOARD
Refer to page 136.
CE TRAP
Q353 DTC144WU INVERTER
Q359 2SC4081 EQ
Q361 2SA1576 EQ
Q362 2SC4081 EQ
Q356 2SA812 SYNC TIP CLAMP
Q357 2SC1623 SYNC TIP CLAMP
Q364 DTC144WU TAPE GAIN SW
Q366 2SC4081 LPF
Q375 FMW1
Q377 2SC4081 LPF
Q379 2SA1576 REC C FILTER
REC C FILTER
D338 1S2837
Q368 2SC4081 INVERT
IC333 µPD6142G CHARACTOR GENERATOR
IC332 TC40H008F CG WINDOW GATE
CHARACTOR POSITION
D334 RD3.0MB2
Q367 DTC144WU INVERT
Q354 2SC4081
TO VF
FL501 1.5M BPF
AU-32P BOARD
Refer to page 144.
D501 RD12MB2
Q252 DTC144W
Q371 2SA1576
D343,342 RD9.1MB1
ATF BAL


20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
A
B
C
D
E
F
G
H
I
J
IC333
μPD6142G
CHARACTOR GENERATOR
IC332
TC40H008F
CG WINDOW GATE
TO VF
D338
IS2837
Q368
2SC4081
INVERT
Q353
DTC144WU
INVERTER
Q359 2SC4081 EQ
Q361 2SA1576 EQ
Q362 2SC4081 EQ
CHARACTER POSITION
Q367
DTC144WU
INVERT
Q354
2SC4081
D344
D334
RD3.0MB2
Q357 2SC1623
SYNC TIP CLAMP
Q356 2SA812
SYNC TIP CLAMP
ATF BAL
FL251
FL252
CN001
Vcc
PB RF
16k BPF
47k BPF
V REG
GND
REC ATF
ATF LOCK
TSB
SEL 16k/47k
ATF ERR
NF IN
RP PB MODE
PILOT PULSE
W331(WHT)
CAM GND
CAM IN
TO VC-24P BOARD CN801
(See page 82.)
Q252
DTC144WU
Q251
2SK94
ATF AC GAIN SW
D501
RD12MB2
IC001
CXA1042M
ATF SERVO
S/H A
S/H B
SHUMIT. TRIG.
ENV DET
AGC
Q001
2SA812
BUFFER
Q002
2SA812
LPF
AT-6 BOARD
no mark : REC / PB mode
( ) : REC mode
< > : PB mode
Q375
FMW1
AU-32P
BOARD
Refer to page 144.
SP/LP
CAM/LINE
PB IN
GND
MIC GND
MIC IN
VG
V REF
LINE IN
LINE IN GND
REG 5V
VA PB MODE
RF SWP
REC AFM
REG 4.2V
LOW PASS OUT
LINE OUT
LINE OUT GND
AGC TC
EH OUT
A LINE MUTE
FL501
1.5M BPF
REC C FILTER
Q379
2SA1576
REC C FILTER
CN501(WHT)
AUDIO 5V
AUDIO GND
TO SW-40P BOARD W953
(See page 110.)
CN502(WHT)
MIC IN
EH GND
EH OUT
TO SW-40P BOARD CN954
(See page 110.)
D340, 339
RD9.1MB1
VIDEO OUT
RF DC OUT
AUDIO OUT
CN332
Q371 2SA1576
Q370 2SA1576
Q369 2SB798
RF DC OUT
D343,342 RD9.1MB1
D341 RD9.1MB1
D336 RD3.3MB1
MC-17P BOARD
W516(WHT)
MIC 5V
MIC IN GND
MIC OUT
EH GND
EH IN
IC516 (1/2)
IC516
μPC4572G2
MIC 3V
MIC AMP
CN516(WHT)
MIC UNIT
J516
MIC PLUG IN POWER
J517
DC OUT
J518
no mark : REC mode

SS-81(SERVO, SYSTEM CONTROL, REC/PB AMP), SW-40P(CAMERA SWITCH), CC-7(MODE SWITCH), FP-53(T/S REEL SENSOR), FP-57(BATTERY HOLDER/RELAY), FP-70P(BATT

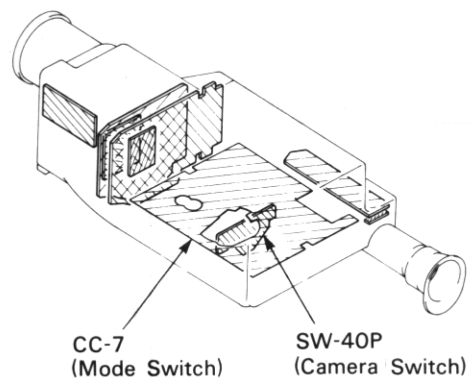
—Ref. No. SS-81 and SW-40P BOARDS : 1, 000 series, FP-53 BOARD : 3, 000 series, FP-70P BOARD : 4, 000 series, CC-7 BOARD : 5, 000 series, FP-57 BOARD : 6, 000 series—

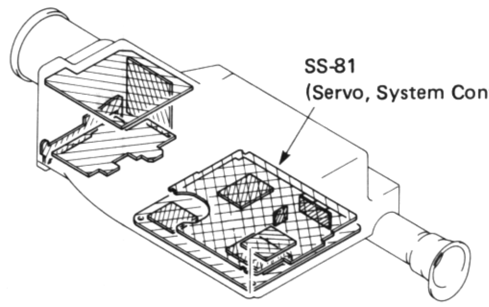
Note:

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.
- **Digital transistor (SS-81 board: Q009, Q012, Q014, Q018, Q019, Q022, Q023, Q024, Q025, Q216, Q217, Q219, SW-40P board: Q951): transistor with resistor.**
  Refer to the SS-81, SW-40P boards schematic diagram for digital transistor.

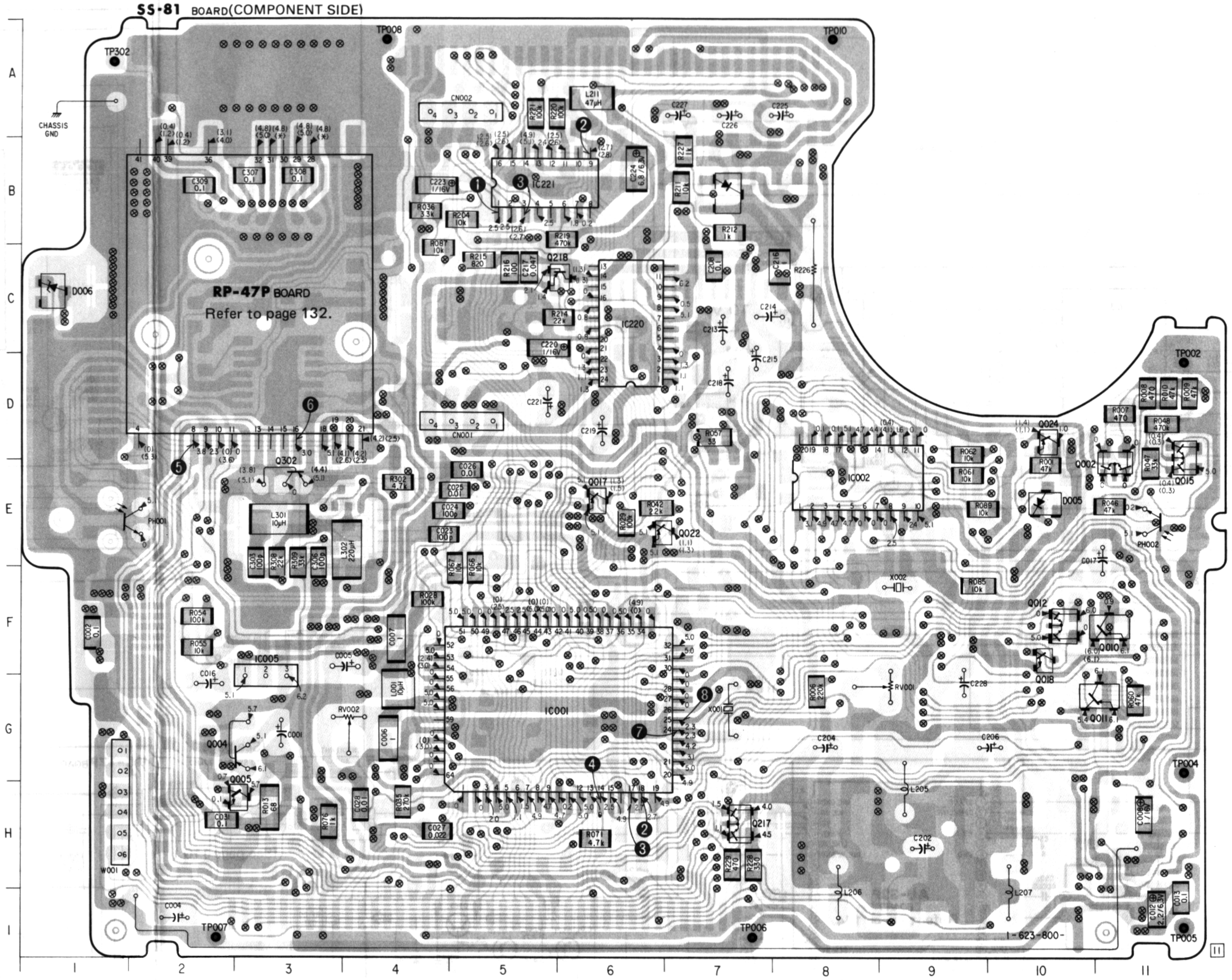
Caution:	
Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

When indicating parts by reference number, please include the board name.

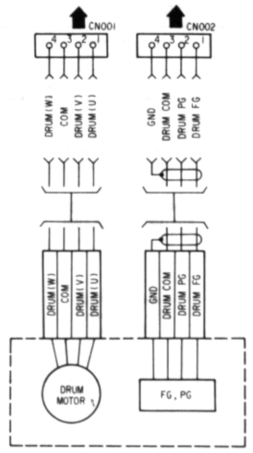

CC-7
(Mode Switch)
SW-40P
(Camera Switch)

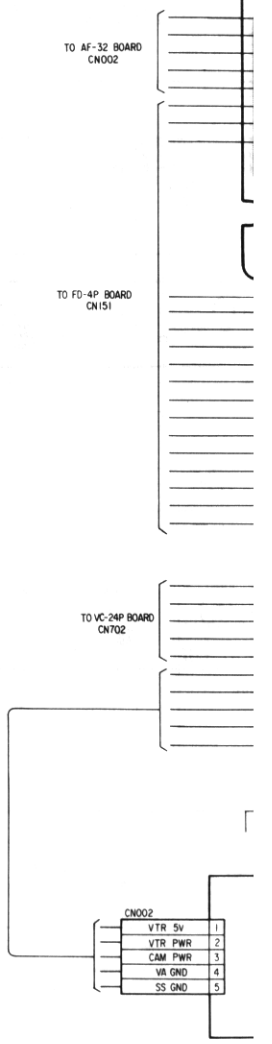

SS-81
(Servo, System Control, REC/PB AMP)

CN001	D-5
CN002	A-5
CN003	F-22
CN301	B-21
CN302	D-22
D001	B-20
D002	D-16
D003	H-18
D004	H-18
D005	E-10
D006	C-1
D007	C-19
D008	E-17
D009	D-17
D208	H-16
D209	H-15
D223	B-7
FP-57	A-16
FP-59	D-12
FP-60	I-19
FP-71	G-12
IC001	G-5
IC002	E-8
IC003	D-21
IC004	H-22
IC005	F-3
IC220	C-6
IC221	B-5
IC222	B-17
Q001	E-14
Q002	D-11
Q004	G-3
Q005	H-3
Q006	C-22
Q007	C-21
Q009	G-20
Q010	F-11
Q011	G-11
Q012	F-10
Q013	F-13
Q014	C-19
Q015	D-11
Q016	F-22
Q017	E-6
Q018	F-10
Q019	F-17
Q020	H-21
Q021	H-21
Q022	E-6
Q023	F-17
Q024	D-10
Q025	E-16
Q203	I-16
Q204	I-15
Q216	F-18
Q217	H-7
Q218	C-6
Q219	C-18
Q302	E-3
Q303	E-21
PH001	E-2
PH002	E-11
RV001	G-9
RV002	G-4
TP002	D-11
TP004	G-11
TP007	I-2
TP008	A-4
TP010	A-8
TP302	A-1
W001	H-1


SS-81 BOARD(COMPONENT SIDE)
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8
9
10
11
CHASSIS GND
TP302
TP008
TP010
TP002
TP004
TP005
TP006
TP007
RP-47P BOARD
Refer to page 132.
CN001
CN002
IC001
IC002
IC005
IC220
IC221
D006
PH001
PH002
X001
X002
RV001
RV002
W001
1-623-800-
11

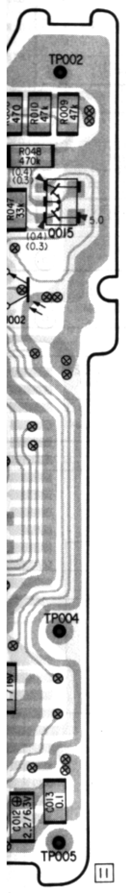
no mark : REC/PB mode
( ) : REC mode
( ) : PB mode
Marked ✱ is not able to measure the voltage of it's position.


CN001
CN002
DRUM(W)
COM
DRUM(V)
DRUM(U)
GND
DRUM COM
DRUM PG
DRUM FG
DRUM MOTOR
FG, PG

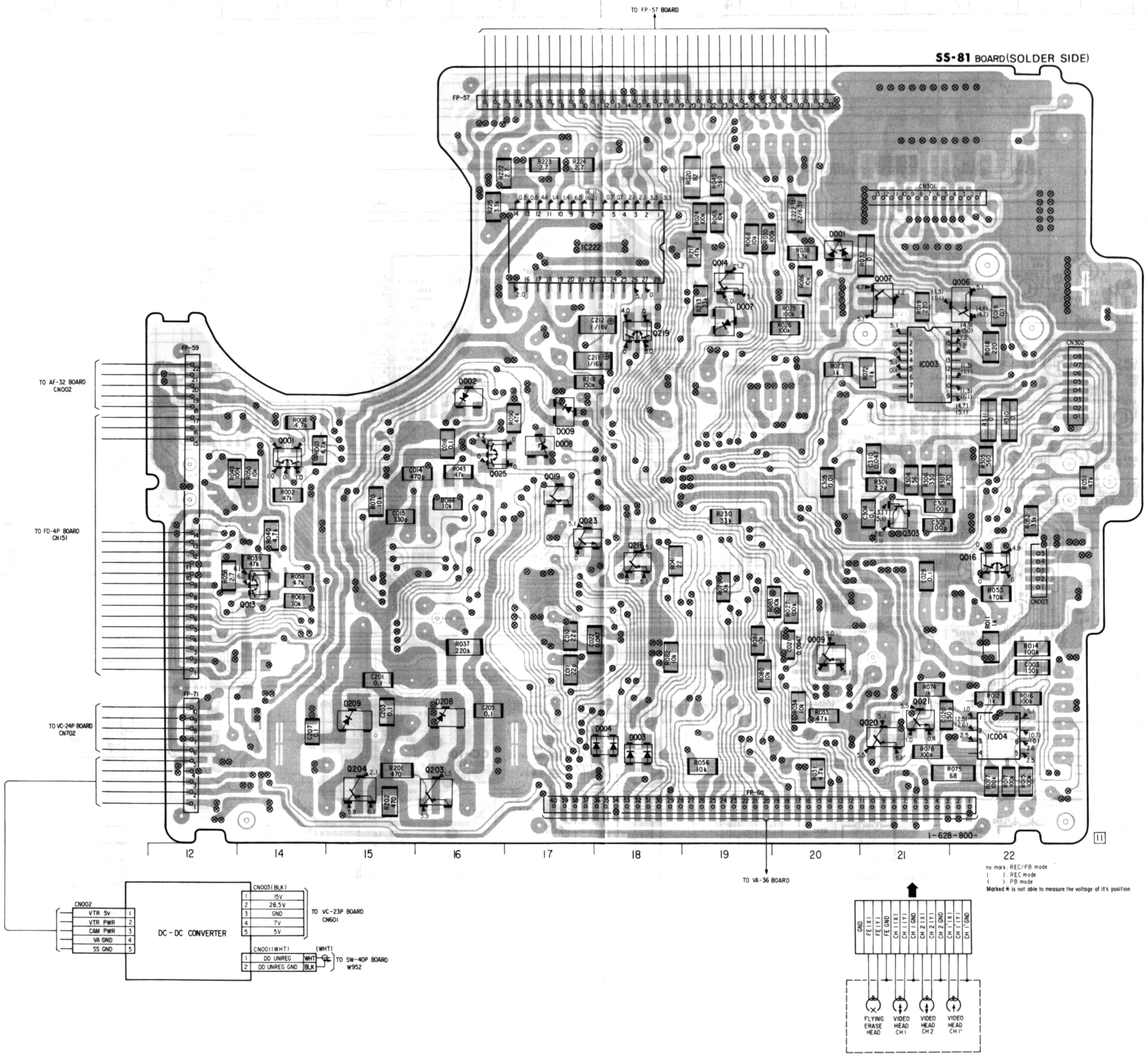

TO AF-32 BOARD
CN002
TO FD-4P BOARD
CN151
TO VC-24P BOARD
CN702
CN002
VTR 5v
VTR PWR
CAM PWR
VA GND
SS GND
1
2
3
4
5

7(BATTERY HOLDER/RELAY), FP-70P(BATTERY TERMINAL) PRINTED WIRING BOARDS

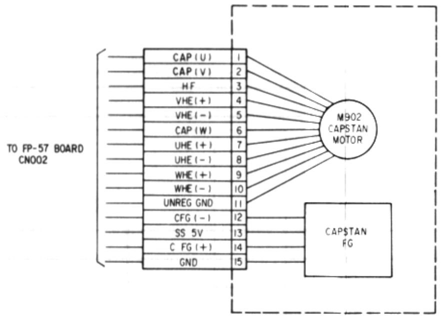
D : 6, 000 series—

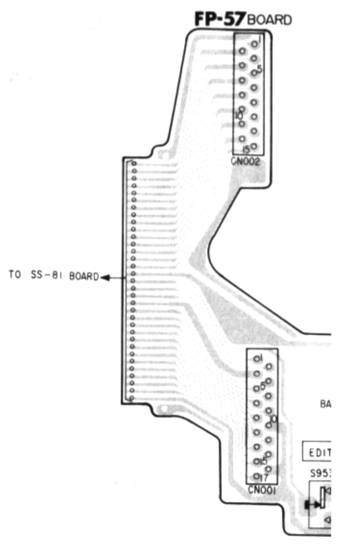

TP002
Q015
TP004
TP005
11

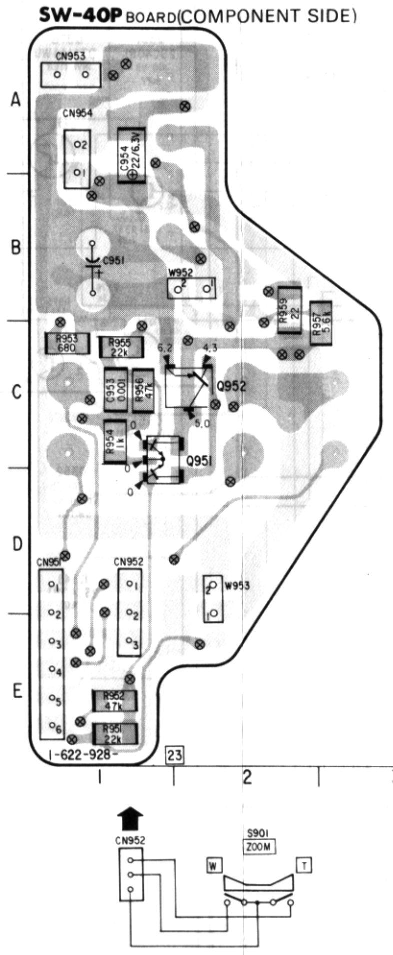
the voltage of it's position.

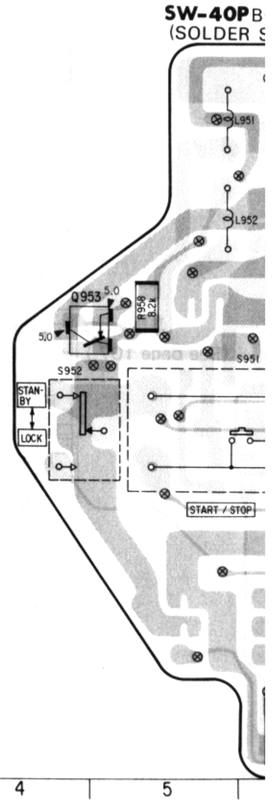

TO FP-57 BOARD
SS-81 BOARD(SOLDER SIDE)
FP-57
FP-59
FP-71
FP-60
IC222
IC003
IC004
CN301
CN302
CN003
TO AF-32 BOARD CN002
TO FD-4P BOARD CN151
TO VC-24P BOARD CN702
TO VA-36 BOARD
1-628-800-
11
12
14
15
16
17
18
19
20
21
22
CN002
VTR 5V
VTR PWR
CAM PWR
VA GND
SS GND
DC-DC CONVERTER
CN003(BLK)
15V
28.5V
GND
7V
5V
TO VC-23P BOARD CN601
CN001(WHT)
DD UNREG
DD UNREG GND
TO SW-40P BOARD W952
GND
FE(X)
FE(Y)
FE GND
CH 1(X)
CH 1(Y)
CH 1 GND
CH 2(X)
CH 2(Y)
CH 2 GND
CH 1'(X)
CH 1'(Y)
CH 1'GND
FLYING ERASE HEAD
VIDEO HEAD CH1
VIDEO HEAD CH2
VIDEO HEAD CH1'

no mark : REC/PB mode
( ) : REC mode
⟨ ⟩ : PB mode
Marked ✱ is not able to measure the voltage of it's position

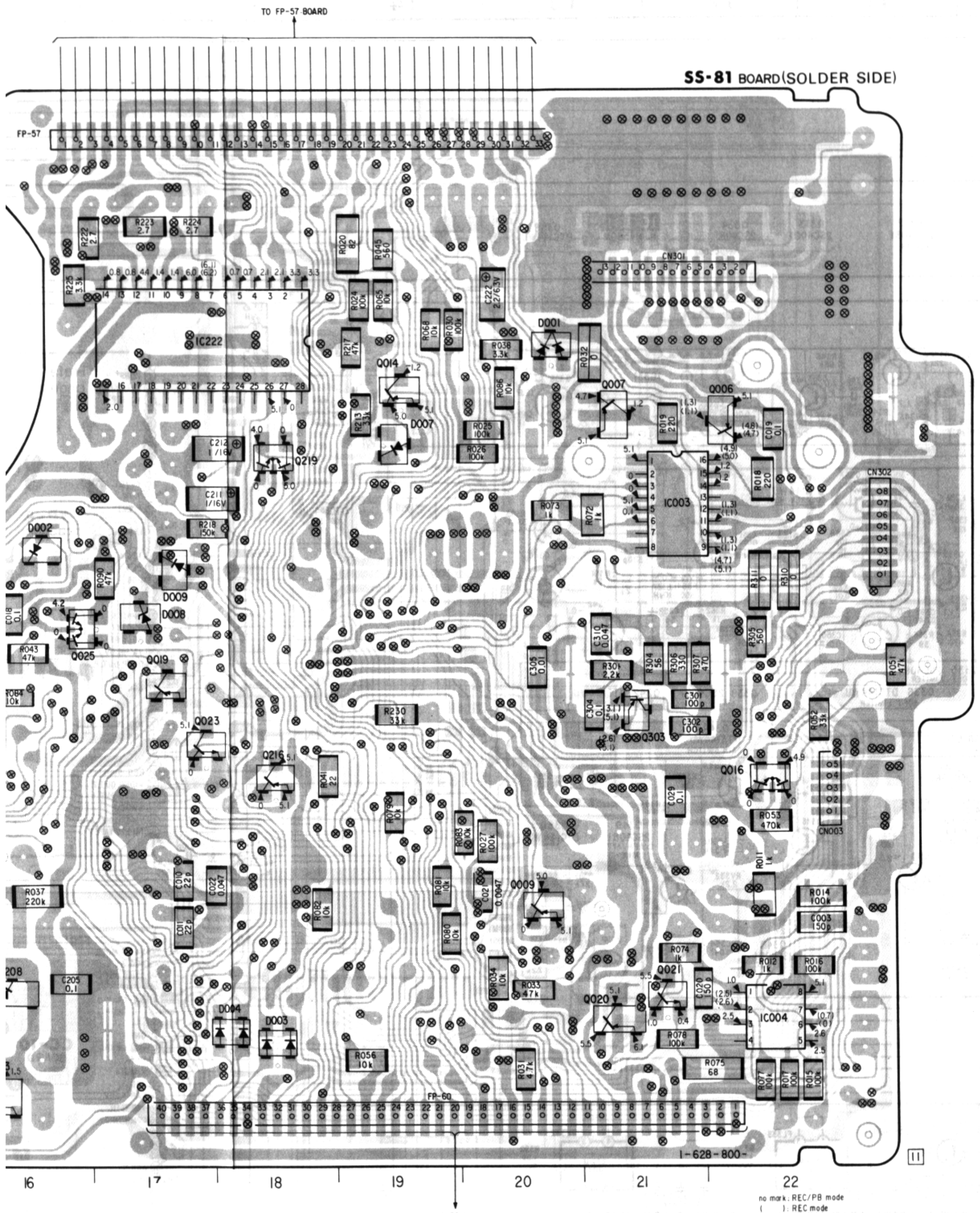

TO FP-57 BOARD CN002
CAP(U)
CAP(V)
HF
VHE(+)
VHE(−)
CAP(W)
UHE(+)
UHE(−)
WHE(+)
WHE(−)
UNREG GND
CFG(−)
SS 5V
C FG(+)
GND
M902 CAPSTAN MOTOR
CAPSTAN FG


FP-57 BOARD
TO SS-81 BOARD
CN002
CN001
EDIT
S953

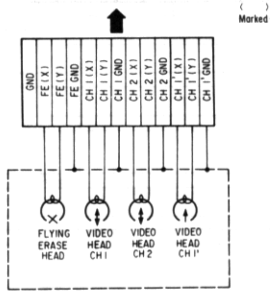

SW-40P BOARD(COMPONENT SIDE)
CN953
CN954
C951
W952
Q953
Q952
Q951
CN951
CN952
W953
A
B
C
D
E
1-622-928-
23
1
2
3
4
5
S901 ZOOM
W
T

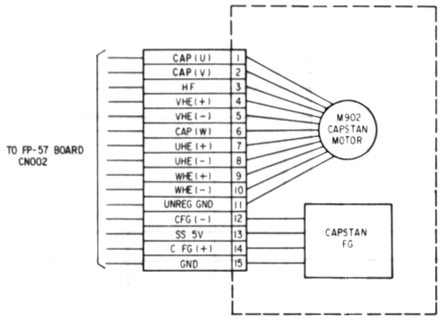

SW-40P BOARD (SOLDER SIDE)
Q953
S952
STAN-BY
LOCK
S951
START / STOP

SS-81 BOARD(SOLDER SIDE)

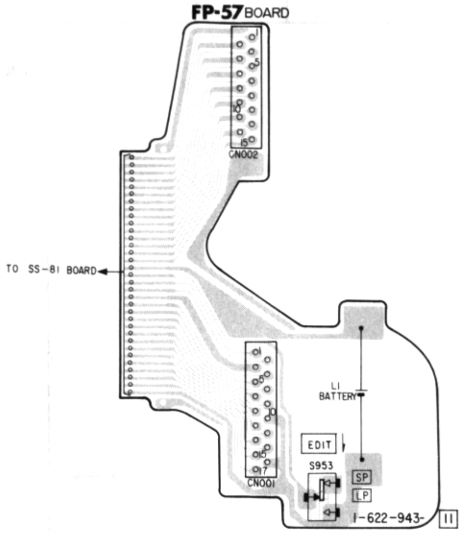

TO FP-57 BOARD
FP-57
CN301
CN302
CN003
IC222
IC003
IC004
FP-60
1-628-800-
11
16
17
18
19
20
21
22
TO VA-36 BOARD

no mark : REC/PB mode
( ) : REC mode
〈 〉 : PB mode
Marked ✱ is not able to measure the voltage of it's position

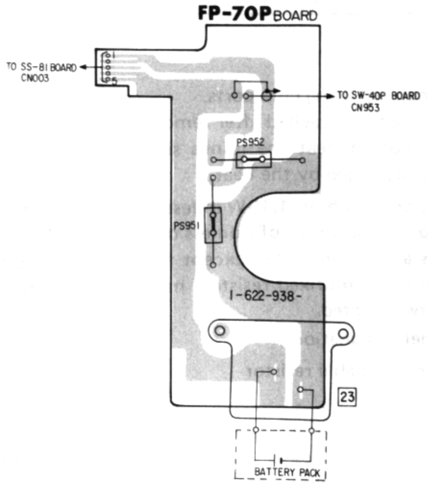

GND
FE (X)
FE (Y)
FE GND
CH 1 (X)
CH 1 (Y)
CH 1 GND
CH 2 (X)
CH 2 (Y)
CH 2 GND
CH 1' (X)
CH 1' (Y)
CH 1' GND
FLYING ERASE HEAD
VIDEO HEAD CH1
VIDEO HEAD CH2
VIDEO HEAD CH1'


TO FP-57 BOARD CN002
CAP (U)
CAP (V)
HF
VHE (+)
VHE (-)
CAP (W)
UHE (+)
UHE (-)
WHE (+)
WHE (-)
UNREG GND
CFG (-)
SS 5V
C FG (+)
GND
M902 CAPSTAN MOTOR
CAPSTAN FG

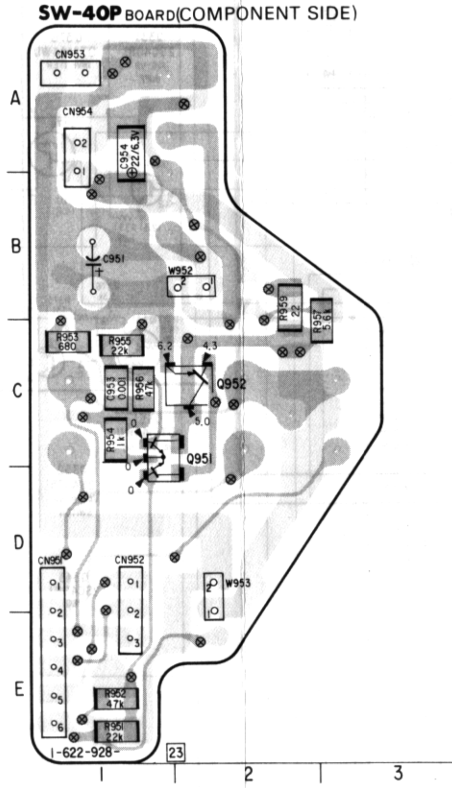
FP-57 BOARD


TO SS-81 BOARD
CN002
CN001
L1 BATTERY
EDIT
S953
SP
LP
1-622-943-
11

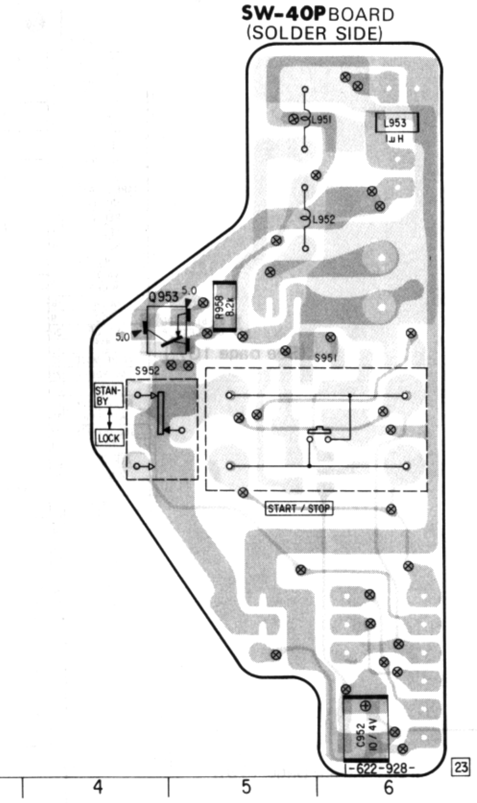
FP-70P BOARD

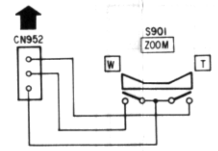

TO SS-81 BOARD CN003
TO SW-40P BOARD CN953
PS952
PS951
1-622-938-
23
BATTERY PACK

SW-40P BOARD(COMPONENT SIDE)

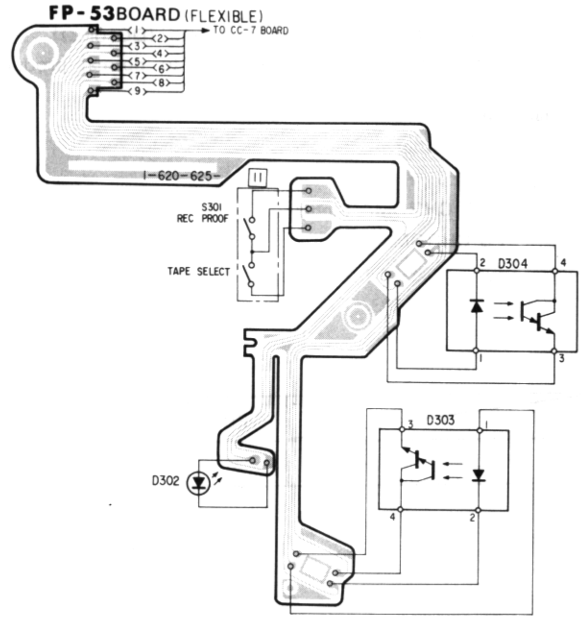

CN953
CN954
C954 22/6.3V
C951
W952
R953 680
R955 22k
R956 47k
Q952
Q951
CN951
CN952
W953
R952 47k
R951 22k
1-622-928-
23
A
B
C
D
E
1
2
3

SW-40P BOARD (SOLDER SIDE)

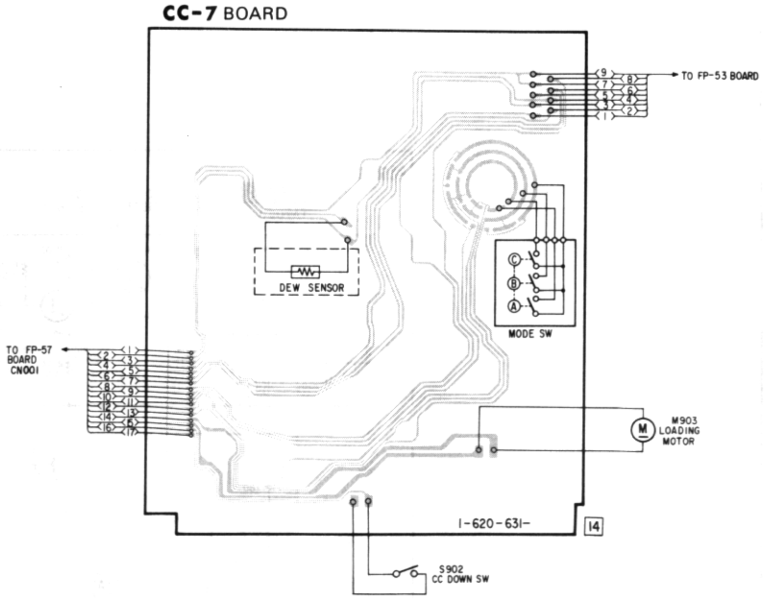

L951
L953 1μH
L952
Q953
R958 8.2k
S952
STAN-BY
LOCK
S951
START / STOP
C952 10/4V
1-622-928-
23
4
5
6


CN952
S901 ZOOM
W
T

FP-53 BOARD (FLEXIBLE)

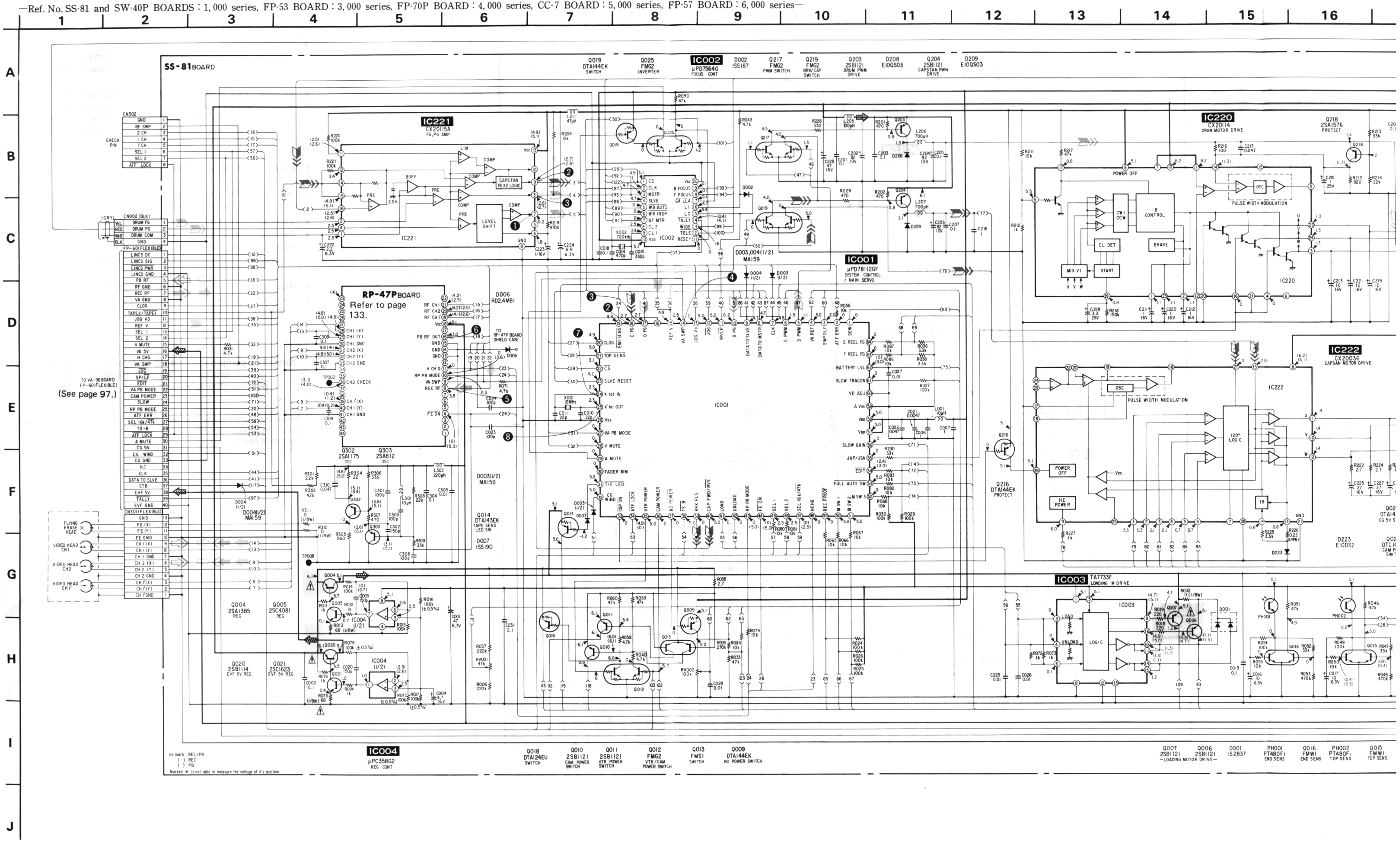

TO CC-7 BOARD
1-620-625-
11
S301 REC PROOF
TAPE SELECT
D304
D303
D302

CC-7 BOARD


TO FP-53 BOARD
DEW SENSOR
MODE SW
TO FP-57 BOARD CN001
M903 LOADING MOTOR
1-620-631-
14
S902 CC DOWN SW

SS-81(SERVO, SYSTEM CONTROL, REC/PB AMP), SW-40P(CAMERA SWITCH), CC-7(MODE SWITCH), FP-53(T/S REEL SENSOR), FP-57(BATTERY HOLDER/RELAY), FP-70P(BATTERY TERMINAL) SCHEMATIC DIAGRAM

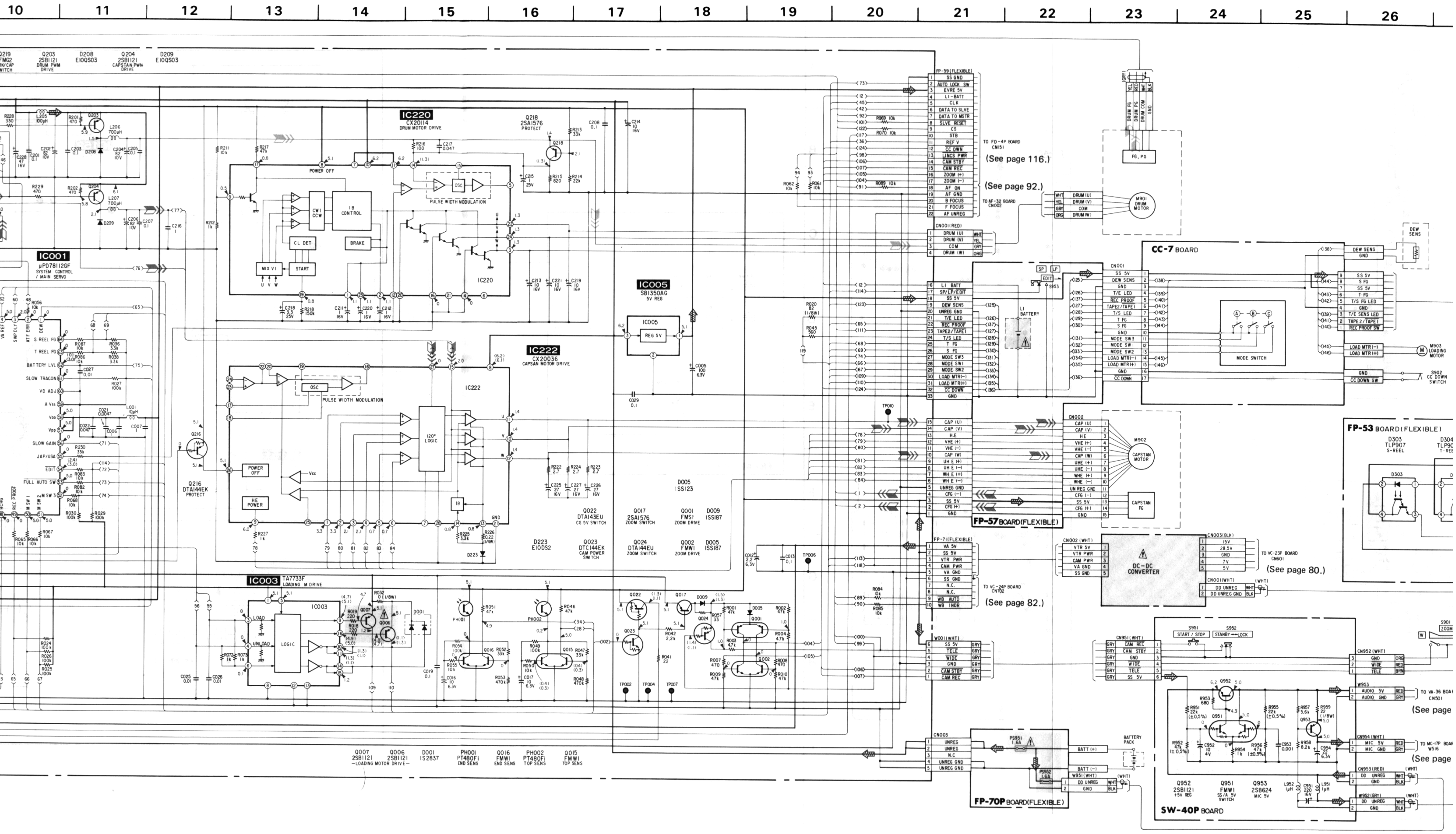
—Ref. No. SS-81 and SW-40P BOARDS : 1, 000 series, FP-53 BOARD : 3, 000 series, FP-70P BOARD : 4, 000 series, CC-7 BOARD : 5, 000 series, FP-57 BOARD : 6, 000 series—


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
SS-81 BOARD
IC221 CX20115A FG,PG AMP
IC002 µPD7564G FOCUS CONT
IC001 µPD78112GF SYSTEM CONTROL / MAIN SERVO
IC220 CX20114 DRUM MOTOR DRIVE
IC222 CX20036 CAPSAN MOTOR DRIVE
IC003 TA7733F LOADING M DRIVE
RP-47P BOARD Refer to page 133.
CN302
CN002 (BLK)
FP-60I (FLEXIBLE)
CN301 (FLEXIBLE)
TO VA-36 BOARD FP-60I (FLEXIBLE)
(See page 97.)
CHECK PIN
FLYING ERASE HEAD
VIDEO HEAD CH1
VIDEO HEAD CH2
VIDEO HEAD CH1'
PULSE WIDTH MODULATION
POWER OFF
Q019 DTA144EK SWITCH
Q025 DTA144EK INVERTER
D002 1SS187
Q217 FMG2 PWM SWITCH
Q219 FMG2 BRK/CAP SWITCH
Q203 2SB1121 DRUM PWM DRIVE
D208 EI0QS03
Q204 2SB1121 CAPSTAN PWN DRIVE
D209 EI0QS03
Q218 2SA1576 PROTECT
D006 RD2.4MB1
D003(1/2) MA159
Q014 DTA143EK TAPE SENS LED SW
D007 1SS190
D004(1/2) MA159
Q302 2SA1175 OSC
Q303 2SA812 OSC
Q216 DTA144EK PROTECT
D223 EI0DS2
Q004 2SA1385 REG
Q005 2SC4081 REG
Q020 2SB1114 EVF 5V REG
Q021 2SC1623 EVF 5V REG
IC004 µPC358G2 REG CONT
Q018 DTA124EU SWITCH
Q010 2SB1121 CAM POWER SWITCH
Q011 2SB1121 VTR POWER SWITCH
Q012 FMG2 VTR/CAM POWER SWITCH
Q013 FMS1 SWITCH
Q009 DTA144EK NO POWER SWITCH
Q007 2SB1121 Q006 2SB1121 —LOADING MOTOR DRIVE—
D001 1S2837
PH001 PT480Fi END SENS
Q016 FMW1 END SENS
PH002 PT480Fi TOP SENS
Q015 FMW1 TOP SENS

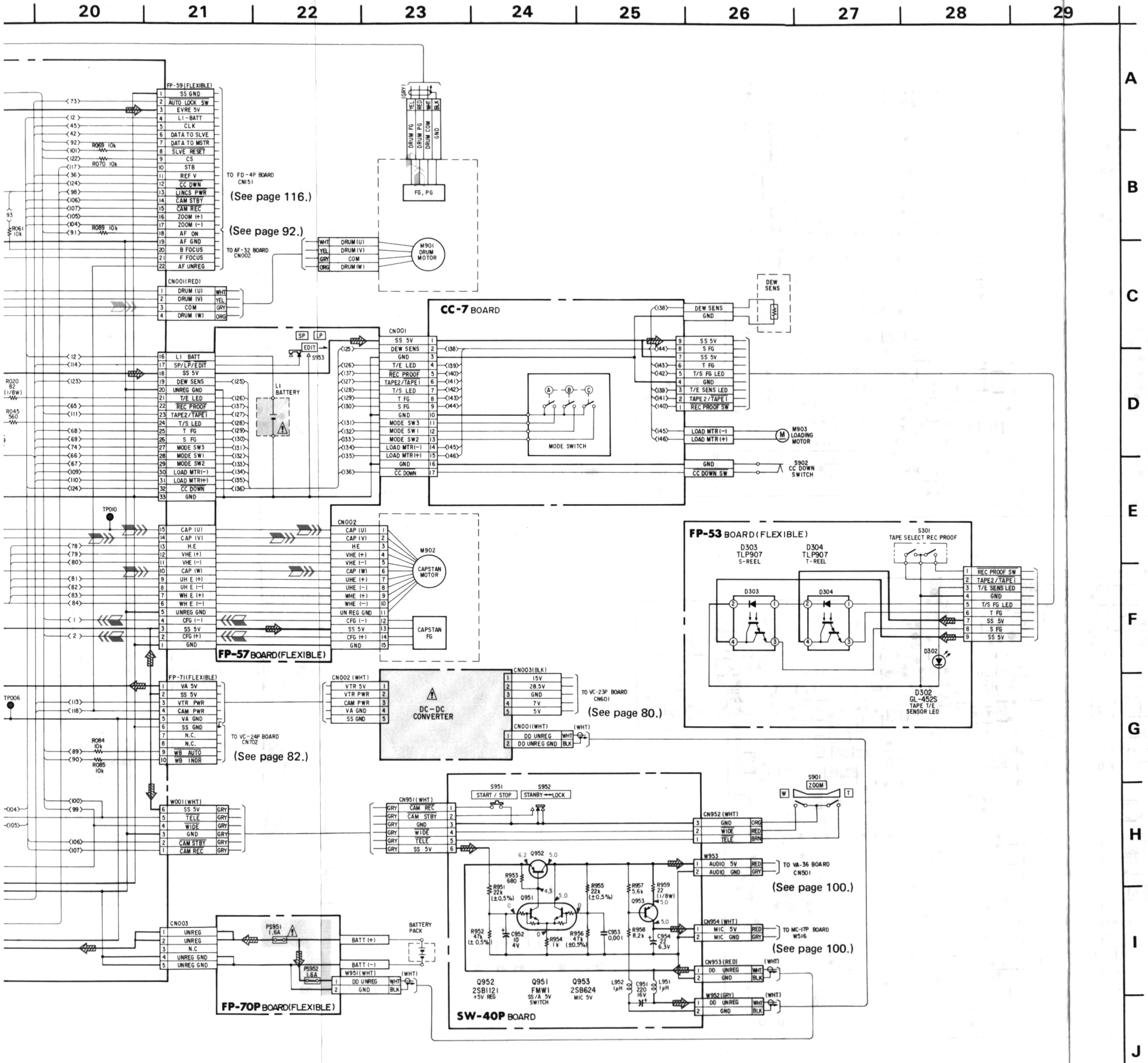
no mark : REC/PB
( ) : REC
( ) : PB
Marked * : is not able to measure the voltage of it's position

ERVO/SYSTEM CONTROL

OLDER/RELAY), FP-70P(BATTERY TERMINAL) SCHEMATIC DIAGRAM


10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
Q219 FMG2
Q203 2SB1121 DRUM PWM DRIVE
D208 E10QS03
Q204 2SB1121 CAPSTAN PWM DRIVE
D209 E10QS03
IC220 CX20114 DRUM MOTOR DRIVE
Q218 2SA1576 PROTECT
POWER OFF
CW I CCW
18 CONTROL
PULSE WIDTH MODULATION
CL DET
BRAKE
START
MIX V I
IC220
IC001 μPD78112GF SYSTEM CONTROL / MAIN SERVO
IC005 S81350AG 5V REG
REG 5V
IC222 CX20036 CAPSAN MOTOR DRIVE
PULSE WIDTH MODULATION
OSC
120° LOGIC
IC222
POWER OFF
HE POWER
Q216 DTA144EK PROTECT
D005 1SS123
Q022 DTA143EU CG 5V SWITCH
Q017 2SA1576 ZOOM SWITCH
Q001 FMS1 ZOOM DRIVE
D009 1SS187
D223 E10DS2
Q023 DTC144EK CAM POWER SWITCH
Q024 DTA144EU ZOOM SWITCH
Q002 FMW1 ZOOM DRIVE
D005 1SS187
IC003 TA7733F LOADING M DRIVE
LOAD
UNLOAD
LOGIC
IC003
Q007 2SB1121
Q006 2SB1121
—LOADING MOTOR DRIVE—
D001 1S2837
PH001 PT480F1 END SENS
Q016 FMW1 END SENS
PH002 PT480F1 TOP SENS
Q015 FMW1 TOP SENS
TP002
TP004
TP007
TP006
TP010
FP-59 (FLEXIBLE)
SS GND
AUTO LOCK SW
EVRE 5V
LI-BATT
CLK
DATA TO SLVE
DATA TO MSTR
SLVE RESET
CS
STB
REF V
CC DOWN
LINCS PWR
CAM STBY
CAM REC
ZOOM (+)
ZOOM (−)
AF ON
AF GND
B FOCUS
F FOCUS
AF UNREG
TO FD-4P BOARD CN151
(See page 116.)
(See page 92.)
TO AF-32 BOARD CN002
CN001 (RED)
DRUM (U)
DRUM (V)
COM
DRUM (W)
M901 DRUM MOTOR
FG, PG
DRUM FG
DRUM PG
DRUM COM
GND
LI BATT
SP/LP/EDIT
SS 5V
DEW SENS
UNREG GND
T/E LED
REC PROOF
TAPE2/TAPE1
T/S LED
T FG
S FG
MODE SW3
MODE SW1
MODE SW2
LOAD MTR(−)
LOAD MTR(+)
CC DOWN
GND
SP
LP
EDIT
S953
LI BATTERY
CC-7 BOARD
CN001
DEW SENS
MODE SWITCH
LOAD MTR(−)
LOAD MTR(+)
M903 LOADING MOTOR
S902 CC DOWN SWITCH
CC DOWN SW
CAP (U)
CAP (V)
H.E
VHE (+)
VHE (−)
CAP (W)
UHE (+)
UHE (−)
WHE (+)
WHE (−)
UNREG GND
CFG (−)
SS 5V
CFG (+)
GND
CN002
M902 CAPSTAN MOTOR
CAPSTAN FG
FP-57 BOARD (FLEXIBLE)
FP-53 BOARD (FLEXIBLE)
D303 TLP907 S-REEL
D304 TLP90 T-REE
FP-71 (FLEXIBLE)
VA 5V
SS 5V
VTR PWR
CAM PWR
VA GND
SS GND
N.C.
WB AUTO
WB INDR
TO VC-24P BOARD CN702
(See page 82.)
CN002 (WHT)
VTR 5V
DC-DC CONVERTER
CN003 (BLK)
15V
28.5V
7V
5V
TO VC-23P BOARD CN601
(See page 80.)
CN001 (WHT)
DD UNREG
DD UNREG GND
W001 (WHT)
TELE
WIDE
CAM STBY
CAM REC
CN951 (WHT)
S951 START / STOP
S952 STANBY→LOCK
CN952 (WHT)
W953
AUDIO 5V
AUDIO GND
TO VA-36 BOARD CN501
(See page
CN954 (WHT)
MIC 5V
MIC GND
TO MC-17P BOARD W516
(See page
CN953 (RED)
W952 (GRY)
S901 ZOOM
Q952 2SB1121 +5V REG
Q951 FMW1 SS/A 5V SWITCH
Q953 2SB624 MIC 5V
SW-40P BOARD
CN003
UNREG
N.C
UNREG GND
PS951 1.6A
PS952 1.6A
BATT (+)
BATT (−)
BATTERY PACK
W951 (WHT)
DD UNREG
FP-70P BOARD (FLEXIBLE)

VIDEO(2)/SERVO/SYSTEM CONTROL


20
21
22
23
24
25
26
27
28
29
A
B
C
D
E
F
G
H
I
J
FP-59 (FLEXIBLE)
TO FD-4P BOARD CN151
(See page 116.)
(See page 92.)
TO AF-32 BOARD CN002
M901 DRUM MOTOR
FG, PG
CN001 (RED)
CC-7 BOARD
DEW SENS
MODE SWITCH
LI BATTERY
S953
M903 LOADING MOTOR
S902 CC DOWN SWITCH
M902 CAPSTAN MOTOR
CAPSTAN FG
FP-57 BOARD (FLEXIBLE)
FP-53 BOARD (FLEXIBLE)
D303 TLP907 S-REEL
D304 TLP907 T-REEL
S301 TAPE SELECT REC PROOF
D302 GL-452S TAPE T/E SENSOR LED
FP-71 (FLEXIBLE)
TO VC-24P BOARD CN702
(See page 82.)
DC-DC CONVERTER
TO VC-23P BOARD CN601
(See page 80.)
W001 (WHT)
CN951 (WHT)
S951 START / STOP
S952 STANBY→LOCK
S901 ZOOM
SW-40P BOARD
TO VA-36 BOARD CN501
(See page 100.)
TO MC-17P BOARD W516
(See page 100.)
Q952 2SB1121 +5V REG
Q951 FMW1 SS/A 5V SWITCH
Q953 2SB624 MIC 5V
CN003
PS951 1.6A
PS952 1.6A
BATTERY PACK
FP-70P BOARD (FLEXIBLE)
TP010
TP006

Note:

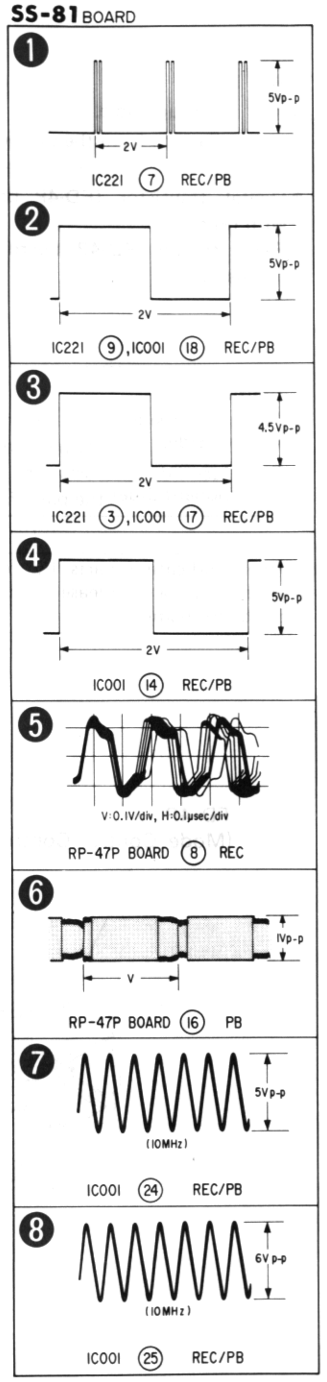
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the head.
- All resistors are in ohms, 1/6W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : panel designation.
- ⏛ : fusible resistor.
- ▣ : nonflammable resistor.
- △ : internal component.
- ⇨ : IN/OUT direction of B+, B− bus.
- ━ : B + bus.
- ▭ : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
  (Remove the W331 on VA-36 board.
  Input point: Pin ① of W331 on VA-36 board.
  (75Ω terminated))
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

- **Signal path**
  - ➡» : REC Y/CHROMA Signal
  - ⇨» : PB Y/CHROMA Signal
  - ➡ : REC AUDIO Signal
  - ⇨ : PB AUDIO Signal

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)			
Capstan speed servo		➡	
Capstan phase servo	➡»		⇨»
Capstan servo (speed and phase)		➡»	
Ref. signal	➡	➡	⇨

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

SS-81 BOARD

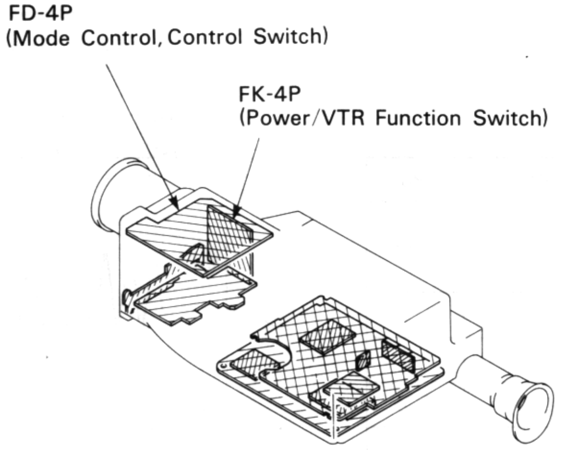


Note:
- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.
- **Digital transistor (FD-4P board: Q162, Q163): transistor with resistor.**
  Refer to the FD-4P board schematic diagram for digital transistor.

Caution:

Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

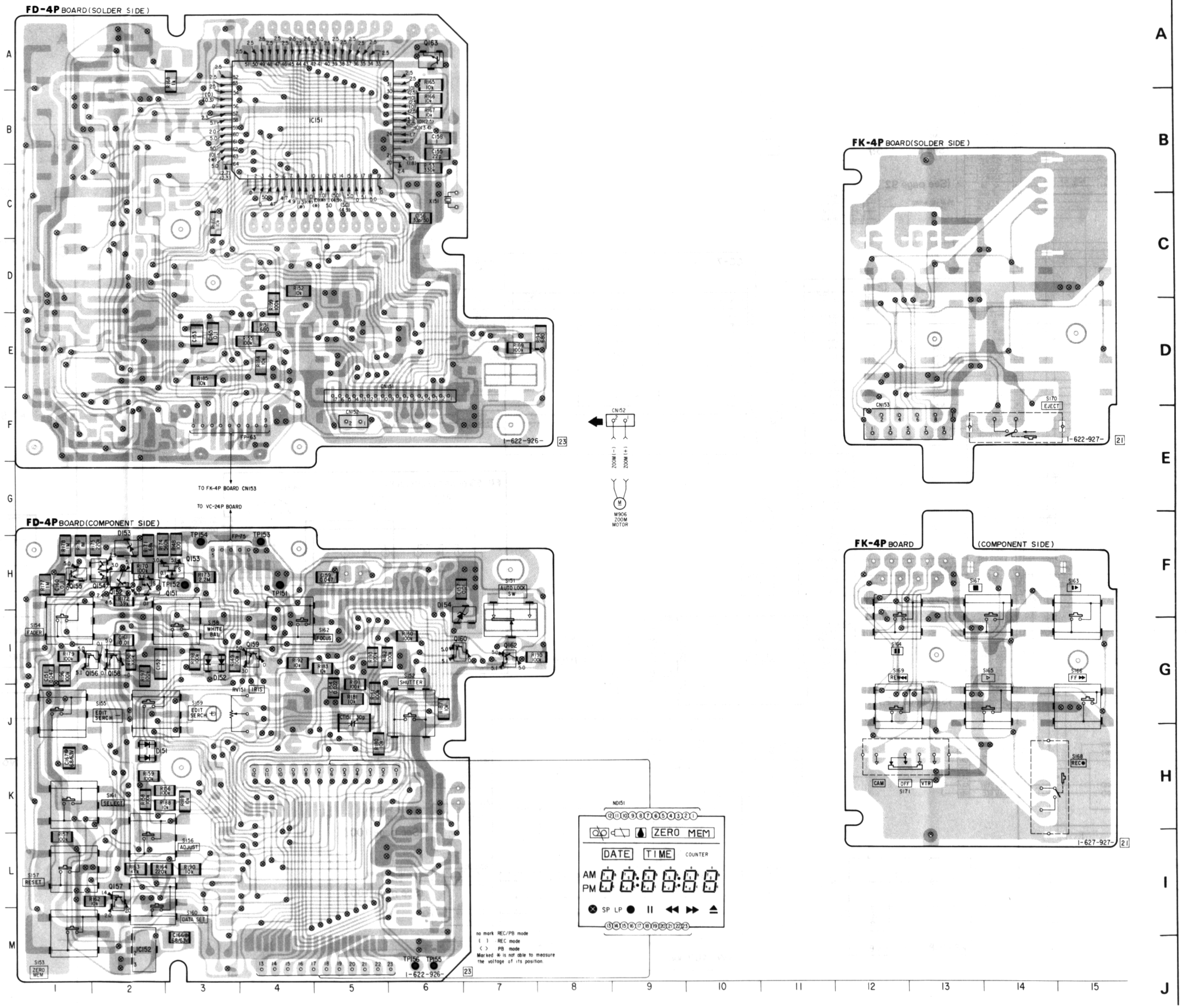
When indicating parts by reference number, please include the board name.


FD-4P
(Mode Control, Control Switch)
FK-4P
(Power/VTR Function Switch)

CN151	F-5
CN152	F-5
D151	J-2
D152	I-3
D153	H-2
D155	I-6
FP-63	F-3
FP-57	H-3
IC151	B-4
IC152	M-2
Q151	H-2
Q152	H-2
Q153	H-3
Q154	H-2
Q155	H-1
Q156	I-2
Q157	L-2
Q158	I-2
Q159	I-4
Q160	I-6
Q162	I-7
Q163	A-6

FD-4P(MODE CONTROL, CONTROL SWITCH), FK-4P(POWER/VTR FUNCTION SWITCH) PRINTED WIRING BOARDS

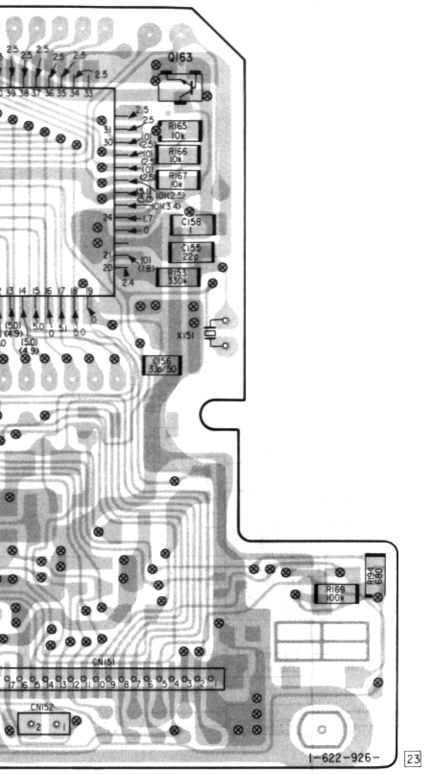
—Ref. No. FD-4P BOARD : 1, 000 series, FK-4P BOARD : 4, 000 series—

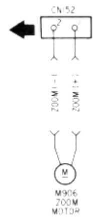

FD-4P BOARD (SOLDER SIDE)
FD-4P BOARD (COMPONENT SIDE)
FK-4P BOARD (SOLDER SIDE)
FK-4P BOARD (COMPONENT SIDE)
IC151
IC152
CN151
CN152
CN153
FP-63
FP-75
TO FK-4P BOARD CN153
TO VC-24P BOARD
ZOOM (−)
ZOOM (+)
M906 ZOOM MOTOR
S151 AUTO LOCK SW
S152 SHUTTER
S153 ZERO MEM
S154 FADER
S155 EDIT SERCH
S156 ADJUST
S157 RESET
S158 WHITE BAL
S159 EDIT SERCH
S160 DATA SET
S161 SELECT
S162 FOCUS
S163
S164
S165
S166 FF
S167
S168 REC
S169 REW
S170 EJECT
S171 CAM OFF VTR
RV151 IRIS
TP151
TP152
TP153
TP154
TP155
TP156
ND151
ZERO MEM
DATE
TIME
COUNTER
AM
PM
SP
LP
1-622-926-
1-627-927-
23
21
A
B
C
D
E
F
G
H
I
J
K
L
M
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

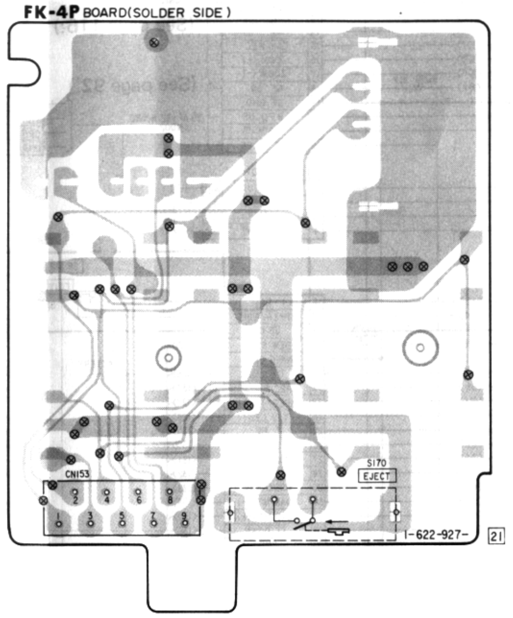
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
Marked ✳ is not able to measure the voltage of its position.

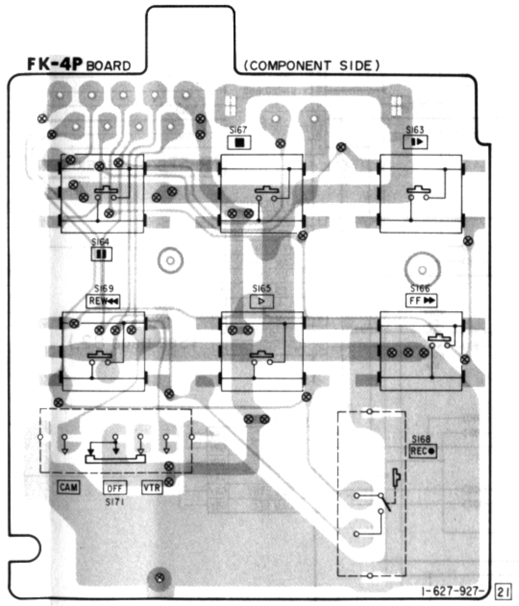
-4P(POWER/VTR FUNCTION SWITCH) PRINTED WIRING BOARDS

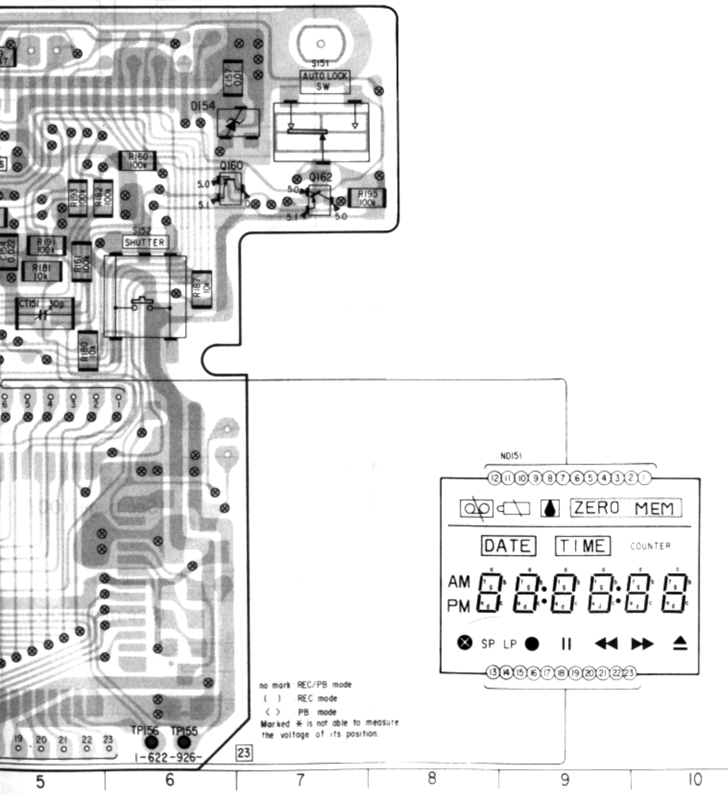
: 4,000 series—


Q163
R165
R166
R167
C158
X151
CN152
1-622-926-
23


CN152
ZOOM
M906
ZOOM MOTOR


FK-4P BOARD (SOLDER SIDE)
CN153
S170
EJECT
1-622-927-
21

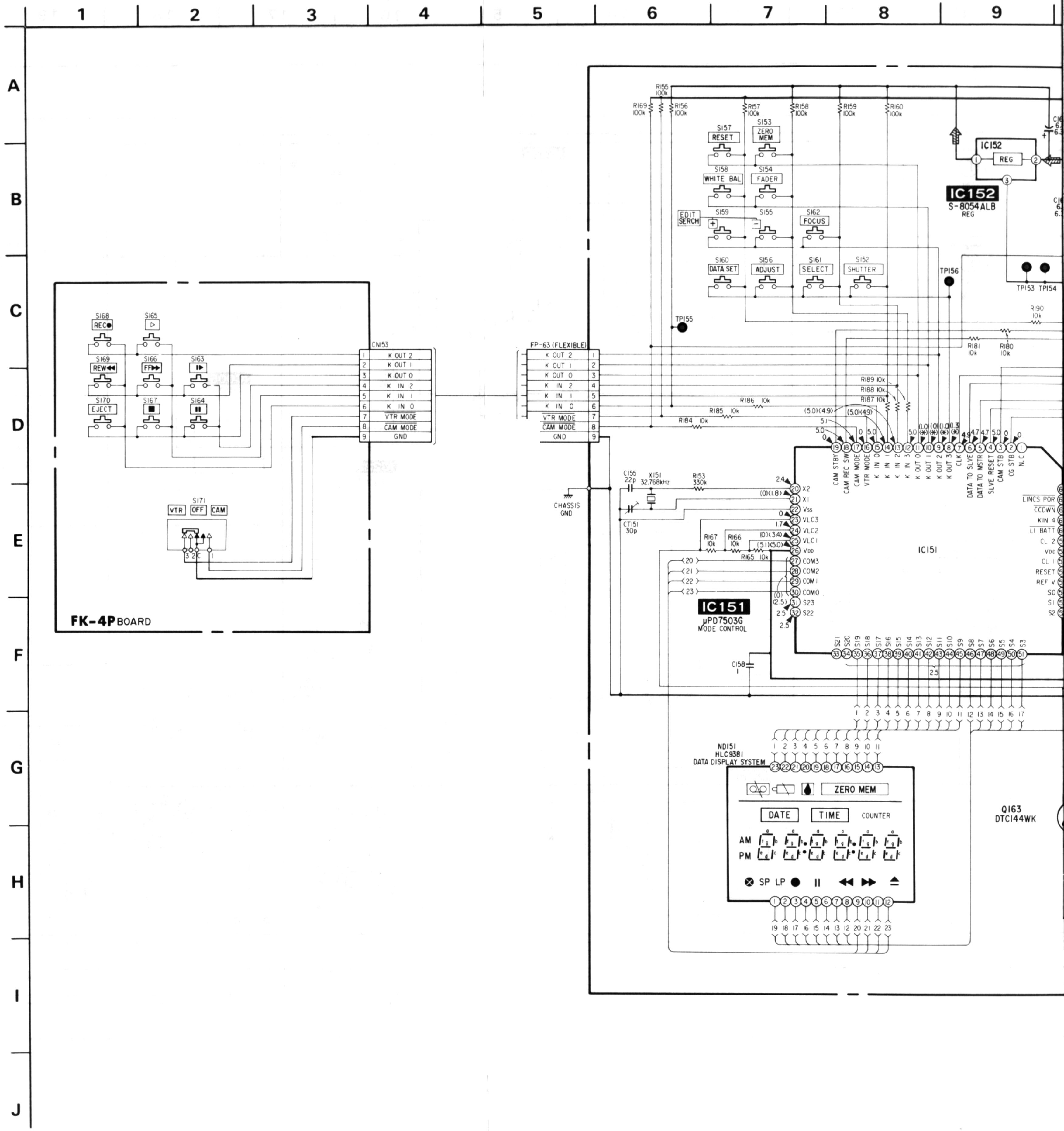

FK-4P BOARD
(COMPONENT SIDE)
S167
■
S163
I▶
S164
II
S169
REW◀◀
S165
▷
S166
FF▶▶
CAM
OFF
VTR
S171
S168
REC●
1-627-927-
21


S151
AUTO LOCK SW
Q154
Q160
Q162
SHUTTER
ND151
ZERO MEM
DATE
TIME
COUNTER
AM
PM
SP
LP
TP156
TP155
1-622-926-
23
5
6
7
8
9

no mark REC/PB mode
( ) : REC mode
< > PB mode
Marked ✳ is not able to measure the voltage of its position.

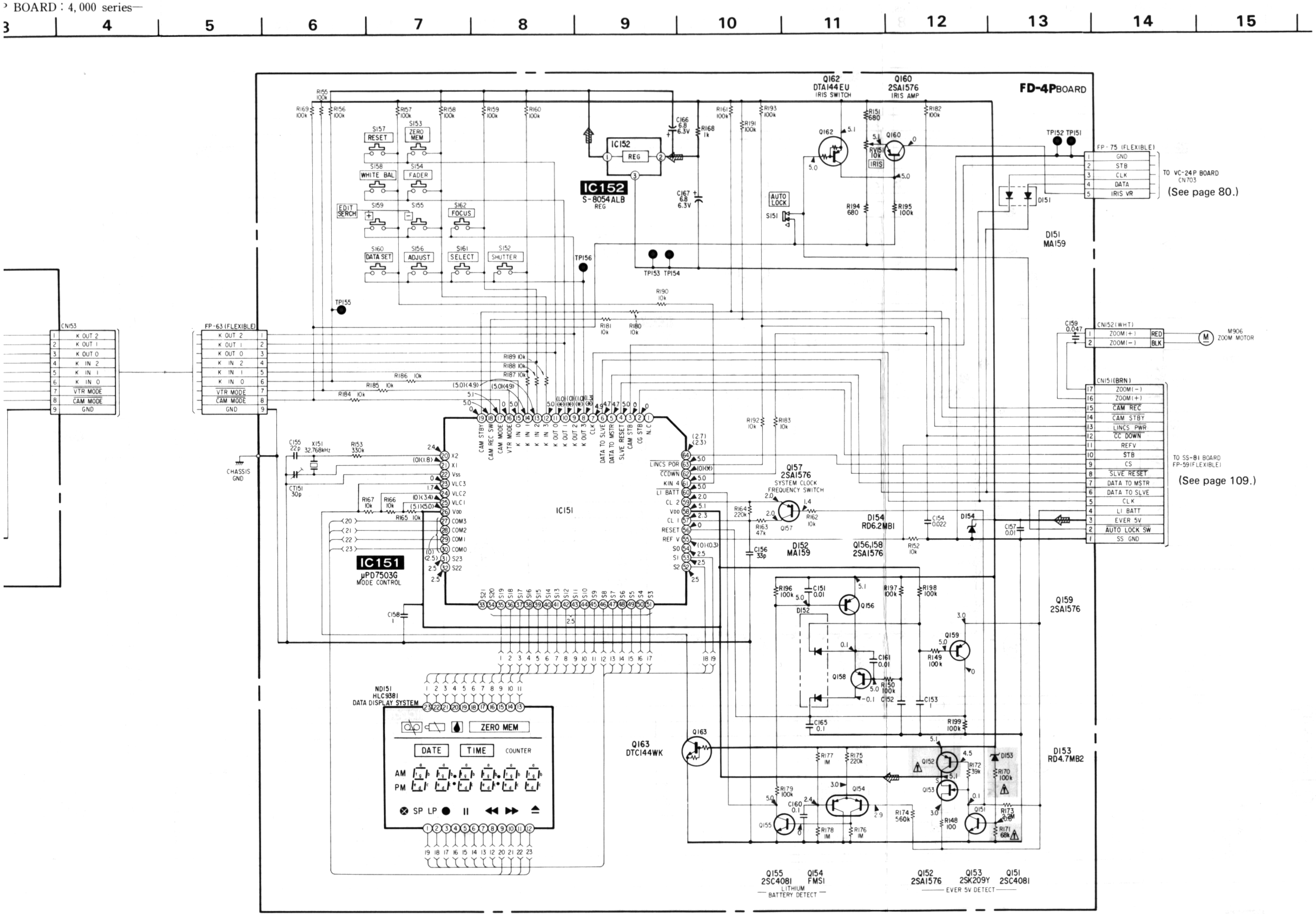
FD-4P(MODE CONTROL, CONTROL SWITCH), FK-4P(POWER/VTR FUNCTION SWITCH) SCHEMATIC DIAGRAM

—Ref. No. FD-4P BOARD : 1,000 series, FK-4P BOARD : 4,000 series—


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
S168
REC●
S165
▷
S169
REW◀◀
S166
FF▶▶
S163
I▶
S170
EJECT
S167
■
S164
II
S171
VTR
OFF
CAM
FK-4P BOARD
CN153
K OUT 2
K OUT 1
K OUT 0
K IN 2
K IN 1
K IN 0
VTR MODE
CAM MODE
GND
FP-63 (FLEXIBLE)
CHASSIS GND
S157
RESET
S153
ZERO MEM
S158
WHITE BAL
S154
FADER
EDIT SERCH
S159
S155
S162
FOCUS
S160
DATA SET
S156
ADJUST
S161
SELECT
S152
SHUTTER
R155 100k
R169 100k
R156 100k
R157 100k
R158 100k
R159 100k
R160 100k
IC152
REG
IC152
S-8054ALB
REG
TP156
TP153
TP154
TP155
R190 10k
R181 10k
R180 10k
R189 10k
R188 10k
R187 10k
R186 10k
R185 10k
R184 10k
C155 22p
X151 32.768kHz
R153 330k
CT151 30p
R167 10k
R166 10k
R165 10k
IC151
µPD7503G
MODE CONTROL
IC151
CAM STBY
CAM REC SW
CAM MODE
VTR MODE
X2
X1
Vss
VLC3
VLC2
VLC1
VDD
COM3
COM2
COM1
COM0
S23
S22
C158
LINCS POR
CCOWN
KIN 4
LI BATT
CL 2
VDD
CL 1
RESET
REF V
S0
S1
S2
ND151
HLC9381
DATA DISPLAY SYSTEM
ZERO MEM
DATE
TIME
COUNTER
AM
PM
SP
LP
Q163
DTC144WK

TCH), FK-4P(POWER/VTR FUNCTION SWITCH) SCHEMATIC DIAGRAM

› BOARD : 4, 000 series—


3
4
5
6
7
8
9
10
11
12
13
14
15
FD-4P BOARD
Q162
DTA144EU
IRIS SWITCH
Q160
2SA1576
IRIS AMP
IC152
REG
IC152
S-8054ALB
REG
S157 RESET
S153 ZERO MEM
S158 WHITE BAL
S154 FADER
S159 EDIT SERCH
S155
S162 FOCUS
S160 DATA SET
S156 ADJUST
S161 SELECT
S152 SHUTTER
TP155
TP156
TP153 TP154
TP152 TP151
AUTO LOCK
S151
IRIS
D151
MA159
FP-75 (FLEXIBLE)
GND
STB
CLK
DATA
IRIS VR
TO VC-24P BOARD CN703
(See page 80.)
CN152 (WHT)
ZOOM(+)
ZOOM(−)
RED
BLK
M906 ZOOM MOTOR
CN151 (BRN)
ZOOM(−)
ZOOM(+)
CAM REC
CAM STBY
LINCS PWR
CC DOWN
REFV
STB
CS
SLVE RESET
DATA TO MSTR
DATA TO SLVE
CLK
LI BATT
EVER 5V
AUTO LOCK SW
SS GND
TO SS-81 BOARD FP-59 (FLEXIBLE)
(See page 109.)
CN153
K OUT 2
K OUT 1
K OUT 0
K IN 2
K IN 1
K IN 0
VTR MODE
CAM MODE
GND
FP-63 (FLEXIBLE)
CHASSIS GND
X151 32.768kHz
IC151
IC151
μPD7503G
MODE CONTROL
Q157
2SA1576
SYSTEM CLOCK FREQUENCY SWITCH
D152
MA159
D154
RD6.2MB1
Q156,158
2SA1576
Q159
2SA1576
ND151
HLC9381
DATA DISPLAY SYSTEM
ZERO MEM
DATE
TIME
COUNTER
AM
PM
SP LP
Q163
DTC144WK
D153
RD4.7MB2
Q155
2SC4081
Q154
FMS1
LITHIUM BATTERY DETECT
Q152
2SA1576
Q153
2SK209Y
Q151
2SC4081
EVER 5V DETECT

no mark : REC/PB mode
( ) : REC mode
〈 〉 : PB mode
Marked ✳ is not able to measure the voltage of its position.

Note:

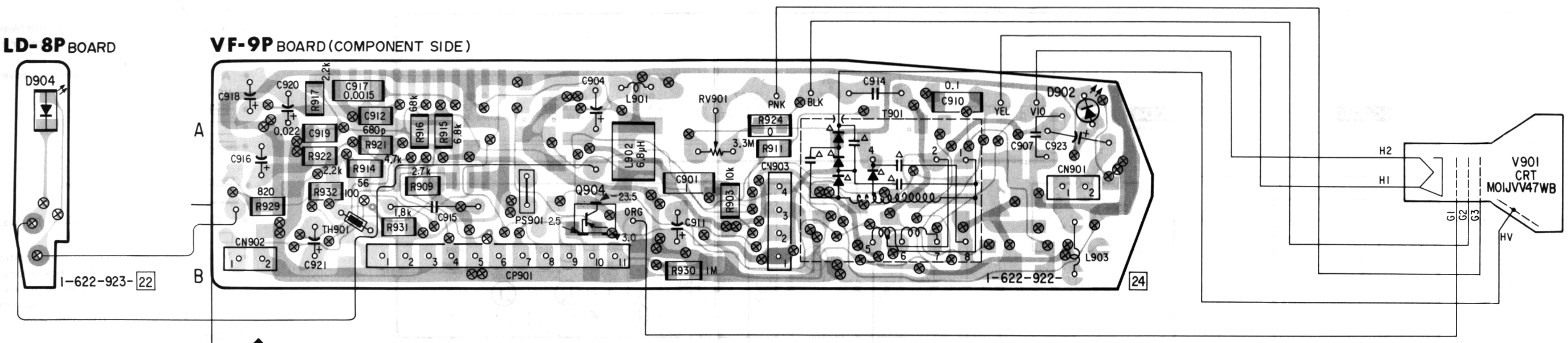
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the head.
- All resistors are in ohms, 1/10W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted.
  50V or less are not indicated except for electrolytic capacitors.
- All variable and semi fixed resistors have characteristic curve B, unless otherwise noted.
- ▭ : panel designation.
- ▭ : Nonflammable resistor
- ── : B+ bus.
- ⇨ : IN/OUT direction of B+, B− bus.
- ▭ : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
  (Remove the W331 on VA-36 board.
  Input point: Pin ① of W331 on VA-36 board.
  (75Ω terminated))
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

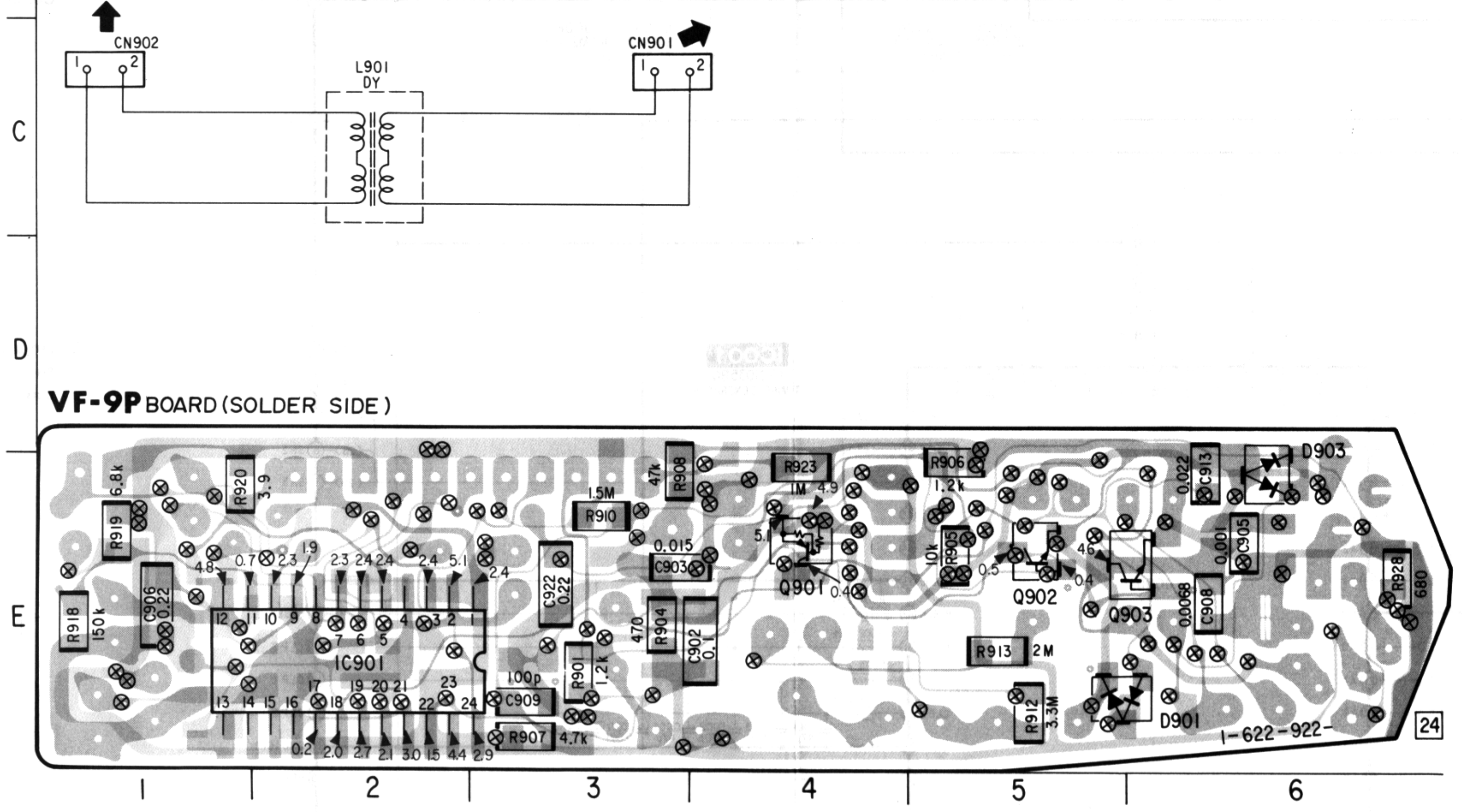
When indicating parts by reference number, please include the board name.

VF-9P(VIEWFINDER), LD-8P(LED) PRINTED WIRING BOARDS

—Ref. No. VF-9P BOARD : 2, 000 series, LD-8P BOARD : 3, 000 series—


LD-8P BOARD
D904
1-622-923- 22
VF-9P BOARD (COMPONENT SIDE)
A
B
C918
C920
C917 0.0015
C912
R917
C919
0.022
R921
680p
R916
R915
68k
6.8k
C916
R922
2.2k
R914
4.7k
2.7k
R909
56
820
R929
R932
100
1.8k
C915
R931
TH901
CN902
C921
CP901
C904
L901
L902 6.8μH
Q904
23.5
3.0
PS901 2.5
ORG
C901
C911
RV901
3.3M
R924 0
R911
PNK
BLK
CN903
R903
10k
R930 1M
C914
0.1
C910
T901
YEL
VIO
D902
C907
C923
CN901
L903
1-622-922-
24
H2
H1
V901 CRT M01JVV47WB
G1
G2
G3
HV

CN901	A-6
CN902	B-1
CN903	A-4
CN903	A-4
CP901	B-3
D901	E-6
D902	A-6
D903	E-6
IC901	E-2
Q901	E-4
Q902	E-5
Q903	E-5
Q904	B-3
RV901	A-4


CN902
L901 DY
CN901
C
D
VF-9P BOARD (SOLDER SIDE)
E
R920
3.9
6.8k
R919
R918
150k
C906 0.22
IC901
C922 0.22
C909
100p
R907
4.7k
R901
1.2k
R910
1.5M
R908
47k
C903
0.015
R904
470
C902 0.1
R923
1M
Q901
R906
1.2k
R905
10k
Q902
Q903
R913
2M
R912
3.3M
D901
C913
0.022
C905
0.001
C908
0.0068
D903
R928
680
1-622-922-
24
1
2
3
4
5
6

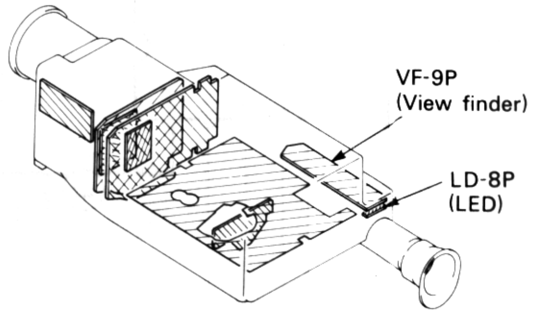
Note:

- ● ⊗ : Through hole.
- ● ▨ : Pattern from the side which enables seeing.
- ● ▨ : Pattern of the rear side.

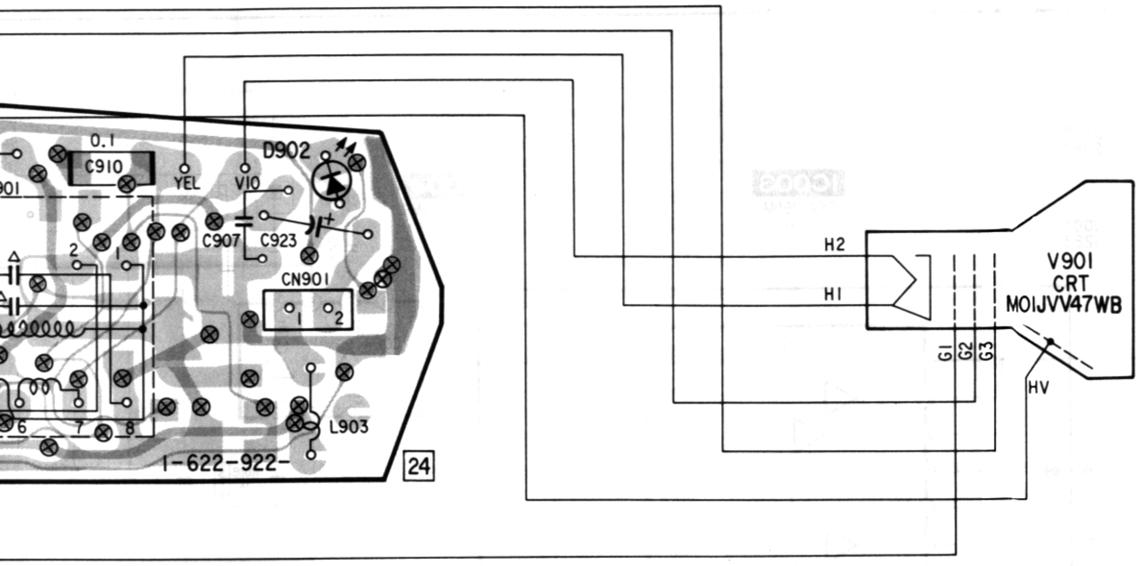
Caution:

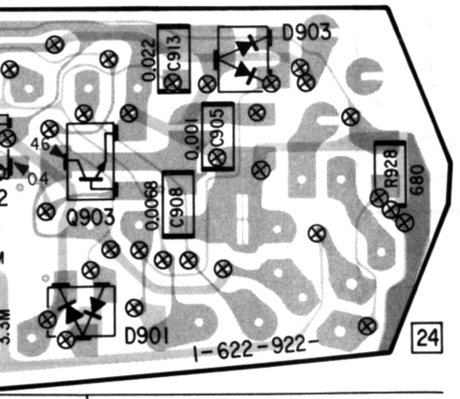
Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

When indicating parts by reference number, please include the board name.


VF-9P (View finder)
LD-8P (LED)

no mark: REC/PB mode


0.1
C910
YEL
VIO
D902
C907
C923
CN901
L903
1-622-922-
24
H2
H1
V901
CRT
M01JVV47WB
G1
G2
G3
HV


D903
C913
0.022
C905
0.001
R928
680
Q903
0.0068
C908
D901
1-622-922-
24
6

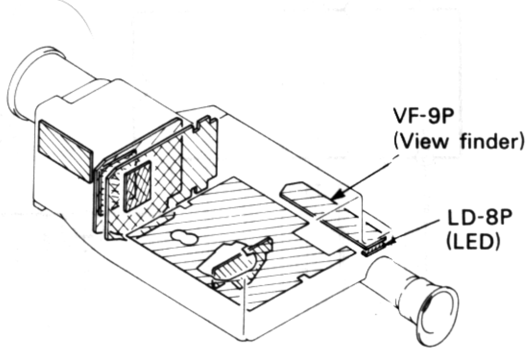
Note:

- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.

Caution:

Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

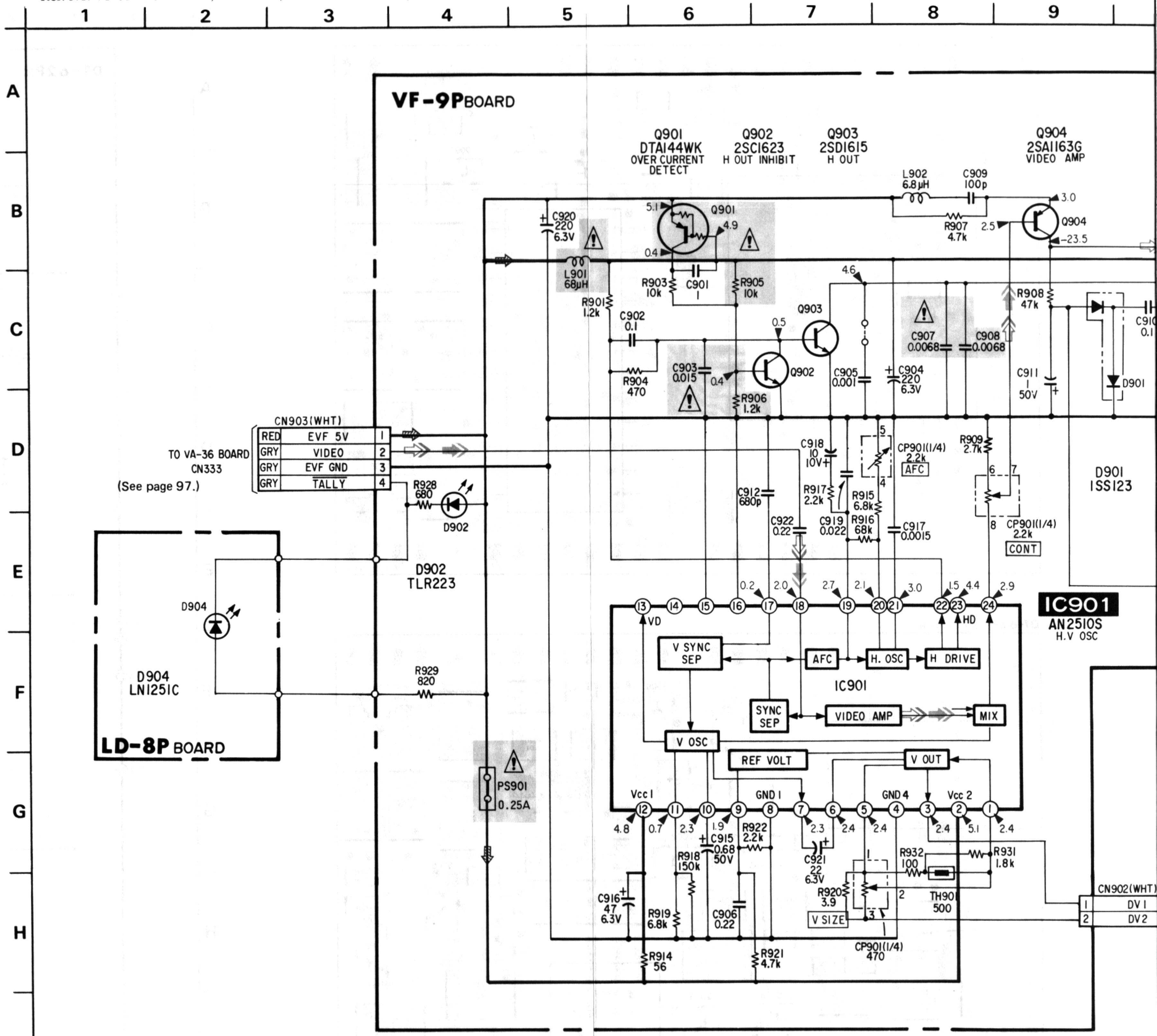
When indicating parts by reference number, please include the board name.


VF-9P
(View finder)
LD-8P
(LED)

no mark: REC/PB mode

VF-9P(VIEWFINDER), LD-8P(LED) SCHEMATIC DIAGRAM

—Ref. No. VF-9P BOARD : 2,000 series, LD-8P BOARD : 3,000 series—

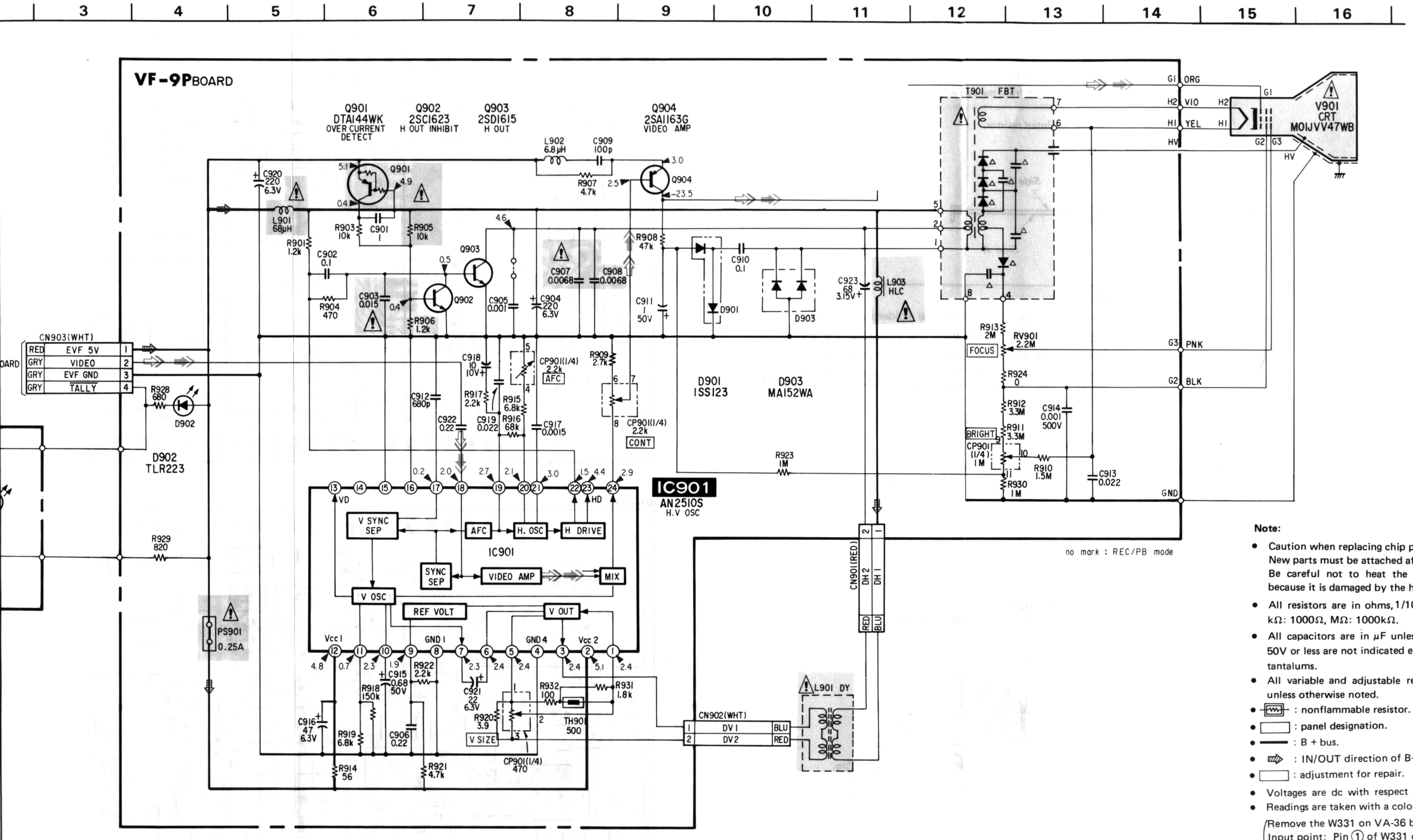

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
VF-9P BOARD
Q901
DTA144WK
OVER CURRENT DETECT
Q902
2SC1623
H OUT INHIBIT
Q903
2SD1615
H OUT
Q904
2SA1163G
VIDEO AMP
L902
6.8μH
C909
100p
R907
4.7k
C920
220
6.3V
L901
68μH
R903
10k
C901
1
R905
10k
R901
1.2k
C902
0.1
R904
470
C903
0.015
R906
1.2k
C905
0.001
C904
220
6.3V
C907
0.0068
C908
0.0068
R908
47k
C911
1
50V
D901
CN903(WHT)
RED
EVF 5V
GRY
VIDEO
GRY
EVF GND
GRY
TALLY
TO VA-36 BOARD CN333
(See page 97.)
R928
680
D902
D902
TLR223
D904
D904
LN1251C
LD-8P BOARD
R929
820
PS901
0.25A
C918
10
10V
R909
2.7k
CP901(1/4)
2.2k
AFC
CP901(1/4)
2.2k
CONT
C912
680p
R917
2.2k
R915
6.8k
C922
0.22
C919
0.022
R916
68k
C917
0.0015
D901
1SS123
IC901
AN2510S
H.V OSC
VD
HD
V SYNC SEP
AFC
H. OSC
H DRIVE
IC901
SYNC SEP
VIDEO AMP
MIX
V OSC
REF VOLT
V OUT
Vcc 1
GND 1
GND 4
Vcc 2
C915
0.68
50V
R922
2.2k
R918
150k
C921
22
6.3V
R932
100
R931
1.8k
R920
3.9
V SIZE
TH901
500
C916
47
6.3V
R919
6.8k
C906
0.22
CP901(1/4)
470
R914
56
R921
4.7k
CN902(WHT)
DV1
DV2

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

P(LED) SCHEMATIC DIAGRAM

00 series, LD-8P BOARD : 3, 000 series—


3
4
5
6
7
8
9
10
11
12
13
14
15
16
VF-9P BOARD
Q901 DTA144WK OVER CURRENT DETECT
Q902 2SC1623 H OUT INHIBIT
Q903 2SD1615 H OUT
Q904 2SA1163G VIDEO AMP
L902 6.8μH
C909 100p
R907 4.7k
C920 220 6.3V
L901 68μH
R901 1.2k
R903 10k
C901 1
R905 10k
C902 0.1
R904 470
C903 0.015
R906 1.2k
C905 0.001
C904 220 6.3V
C907 0.0068
C908 0.0068
R908 47k
C911 1 50V
C910 0.1
D901
D903
C923 68 3.15V
L903 HLC
T901 FBT
V901 CRT M01JVV47WB
G1 ORG
H2 VIO
H1 YEL
HV
G3 PNK
G2 BLK
GND
R913 2M
RV901 2.2M
FOCUS
R924 0
R912 3.3M
C914 0.001 500V
BRIGHT
R911 3.3M
CP901 (1/4) 1M
R910 1.5M
C913 0.022
R930 1M
R923 1M
D901 1SS123
D903 MA152WA
CN903(WHT)
RED EVF 5V 1
GRY VIDEO 2
GRY EVF GND 3
GRY TALLY 4
OARD
R928 680
D902
D902 TLR223
R929 820
PS901 0.25A
C918 10 10V
CP901(1/4) 2.2k
AFC
R917 2.2k
R915 6.8k
R916 68k
C912 680p
C922 0.22
C919 0.022
C917 0.0015
R909 2.7k
CP901(1/4) 2.2k
CONT
IC901
AN2510S H.V OSC
VD
HD
V SYNC SEP
AFC
H. OSC
H DRIVE
IC901
SYNC SEP
VIDEO AMP
MIX
V OSC
REF VOLT
V OUT
Vcc 1
GND 1
GND 4
Vcc 2
C915 0.68 50V
R922 2.2k
R918 150k
C921 22 6.3V
R932 100
R931 1.8k
C916 47 6.3V
R919 6.8k
C906 0.22
R920 3.9
V SIZE
TH901 500
CP901(1/4) 470
R914 56
R921 4.7k
CN902(WHT)
1 DV1 BLU
2 DV2 RED
L901 DY
CN901(RED)
2 DH2 RED
1 DH1 BLU
no mark : REC/PB mode

ents identified by shading and mark
cal for safety. Replace only with
specified.

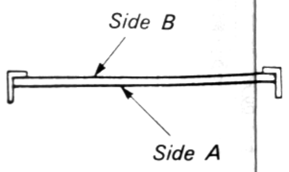
s by refer-
se include

Note:

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- ☐ : panel designation.
- ━ : B + bus.
- ⇨ : IN/OUT direction of B+, B– bus.
- ☐ : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
  (Remove the W331 on VA-36 board.
  Input point: Pin ① of W331 on VA-36 board.
  (75Ω terminated))
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- **Signal path**
  ⇨ : REC Y/CHROMA Signal
  ⇨ : PB Y/CHROMA Signal

Note:

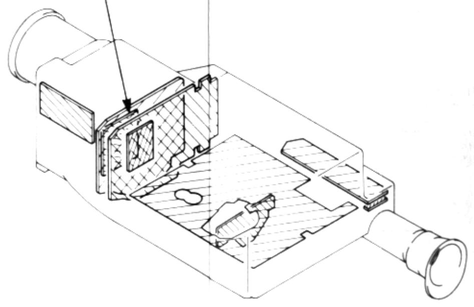
- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- Pattern of the rear si
- ▨ : Printed resistor.


Side B
Side A

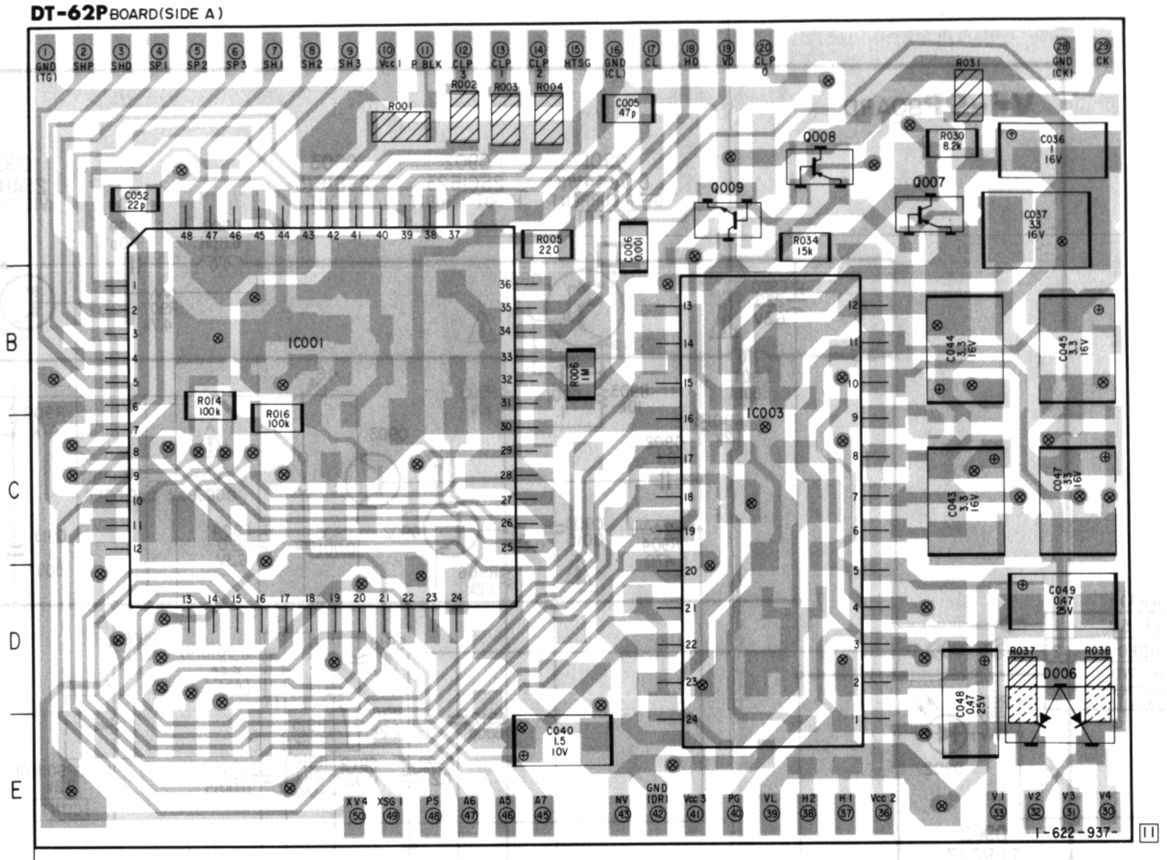
Note

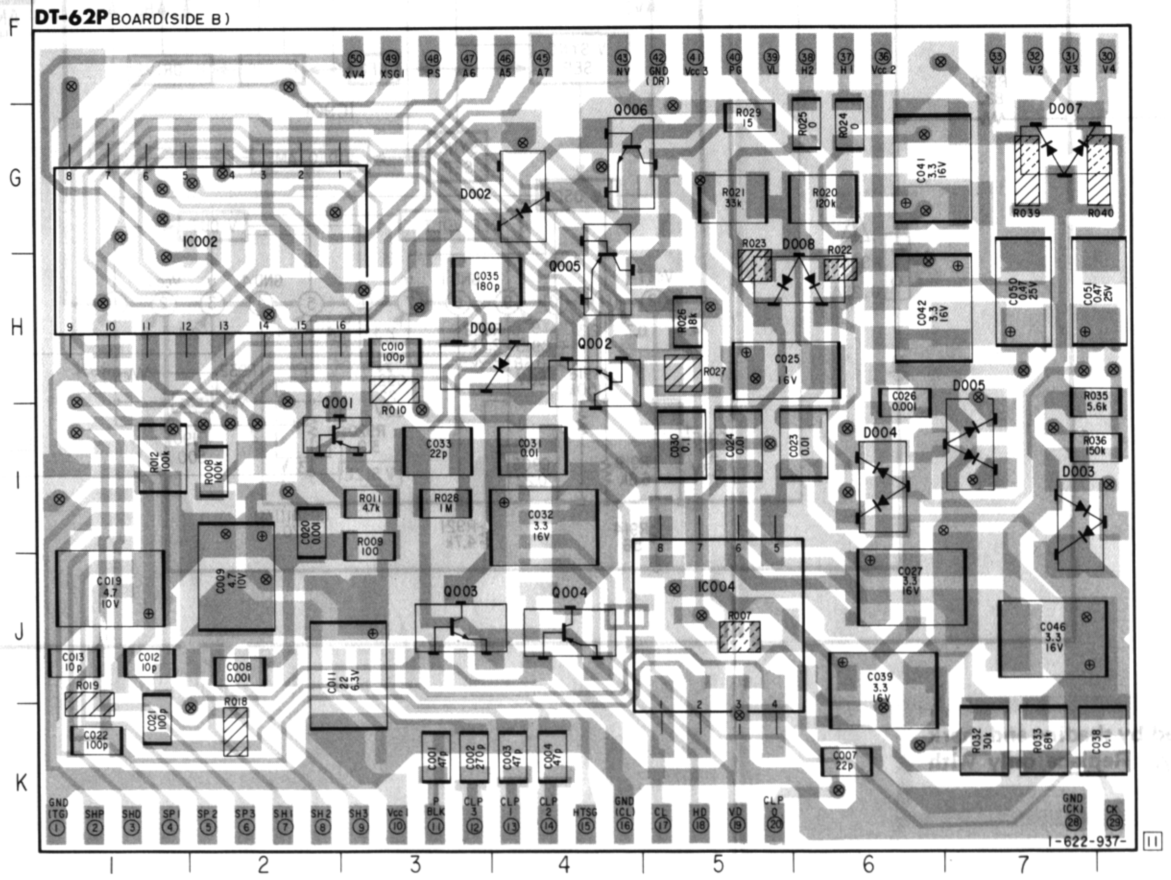
Soldering side (SIDE A) : Parts on the soldering side being seen from the soldering are stated.

Component side (SIDE B) : Parts on the component side being seen from the component are stated.

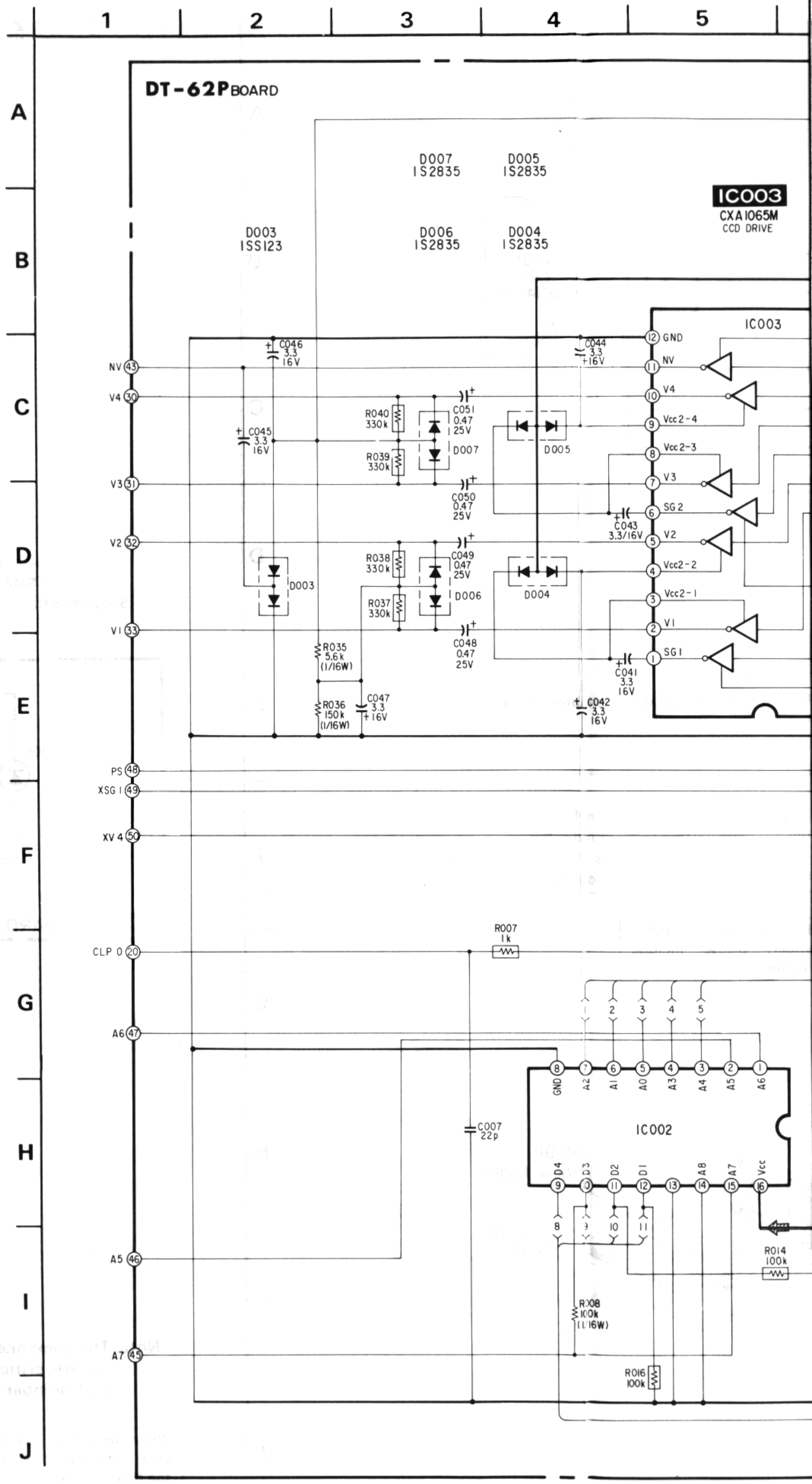

DT-62P
(CCD Drive, Timing Generator)

DT-62P(CCD DRIVE, TIMING GENERATOR) PRINTED WIRING BOARD

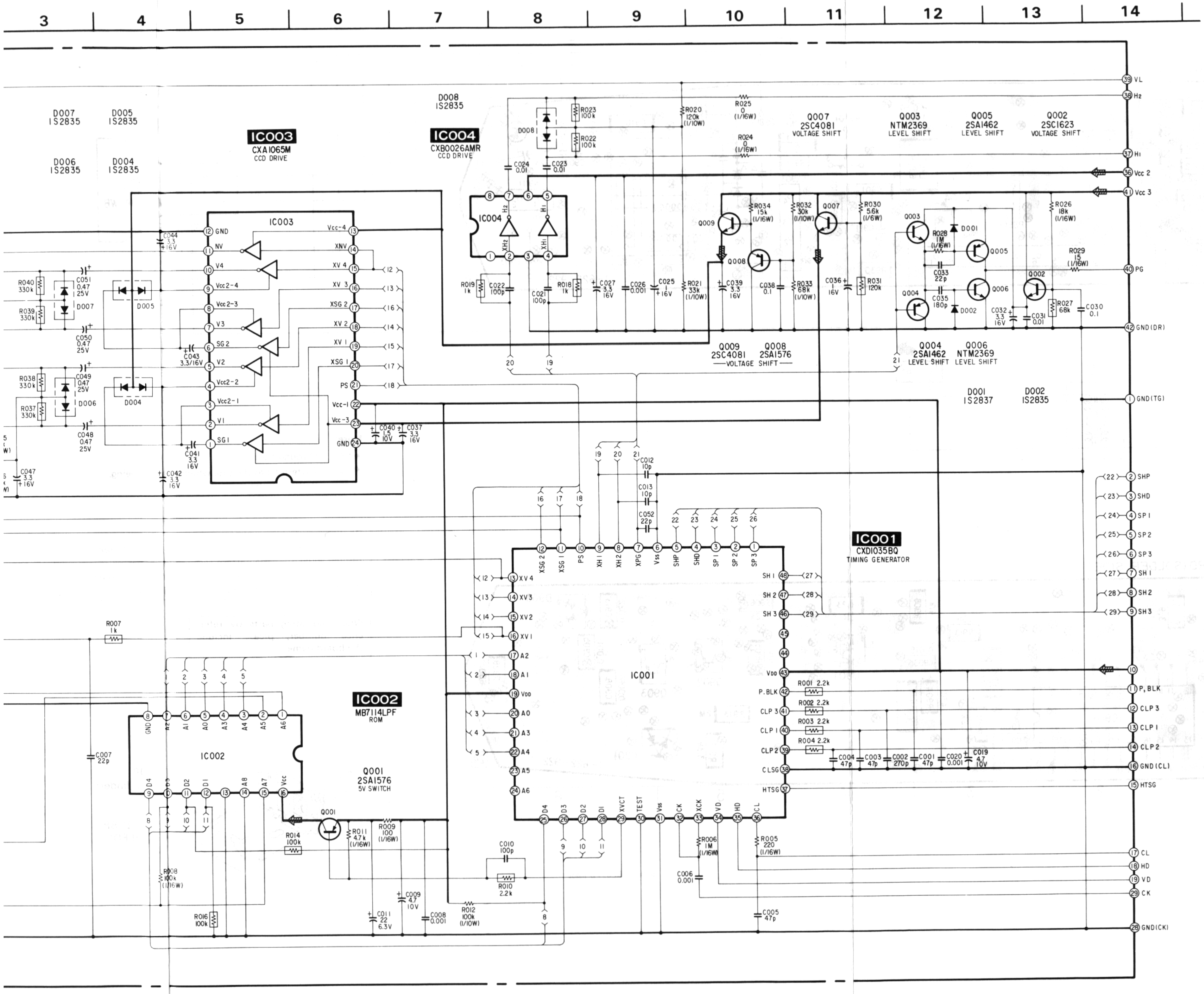

DT-62P BOARD(SIDE A)
IC001
IC003
Q007
Q008
Q009
D006
R001
R002
R003
R004
R005 220
R006 1M
R014 100k
R016 100k
R030 8.2k
R031
R034 15k
R037
R038
C005 47p
C006 0.001
C036 1 16V
C037 3.3 16V
C040 1.5 10V
C043 3.3 16V
C044 3.3 16V
C045 3.3 16V
C047 3.3 16V
C048 0.47 25V
C049 0.47 25V
C052 22p
GND (TG)
SHP
SHD
SP1
SP2
SP3
SH1
SH2
SH3
Vcc1
P BLK
CLP 1
CLP 3
CLP 2
XTSG
GND (CL)
CL
HD
VD
CLP 0
GND (CK)
CK
XV4
XSG1
PS
A6
A5
A7
NV
GND (DR)
Vcc3
PG
VL
H2
H1
Vcc 2
V1
V2
V3
V4
1-622-937-11
B
C
D
E


DT-62P BOARD(SIDE B)
IC002
IC004
Q001
Q002
Q003
Q004
Q005
Q006
D001
D002
D003
D004
D005
D007
D008
R007
R008 100k
R009 100
R010
R011 47k
R012 100k
R018
R019
R020 120k
R021 33k
R022
R023
R024 0
R025 15
R026 1M
R027
R028 18k
R029
R032 150k
R033 68k
R035 5.6k
R036 150k
R039
R040
C001
C007 22p
C008 0.001
C009 47 10V
C010 100p
C011 22 6.3V
C012 10p
C013 10p
C019 4.7 10V
C020 0.001
C021 100p
C022 100p
C023 0.01
C024 0.01
C025 16V
C026 0.001
C027 3.3 16V
C030 0.1
C031 0.01
C032 3.3 16V
C033 22p
C034 270p
C035 180p
C038
C039 3.3 16V
C041 3.3 16V
C042 3.3 16V
C046 3.3 16V
C050 0.47 25V
C051 0.47 25V
F
G
H
I
J
K
1
2
3
4
5
6
7
1-622-937-11

DT-62P(CCD DRIVE, TIMING GENERATOR) SCHEMATIC DIAGRAM


1
2
3
4
5
A
B
C
D
E
F
G
H
I
J
DT-62P BOARD
IC003
CXA1065M
CCD DRIVE
D007 1S2835
D005 1S2835
D003 1SS123
D006 1S2835
D004 1S2835
IC003
GND
NV
V4
Vcc2-4
Vcc2-3
V3
SG2
V2
Vcc2-2
Vcc2-1
V1
SG1
C046 3.3 16V
C044 3.3 16V
C045 3.3 16V
C051 0.47 25V
R040 330k
R039 330k
C050 0.47 25V
C043 3.3/16V
R038 330k
C049 0.47 25V
R037 330k
C048 0.47 25V
C041 3.3 16V
R035 5.6k (1/16W)
R036 150k (1/16W)
C047 3.3 16V
C042 3.3 16V
NV 43
V4 30
V3 31
V2 32
V1 33
PS 48
XSG1 49
XV4 50
CLP 0 20
A6 47
A5 46
A7 45
R007 1k
C007 22p
IC002
GND
A2
A1
A0
A3
A4
A5
A6
D4
D3
D2
D1
A8
A7
Vcc
R014 100k
R008 100k (1/16W)
R016 100k

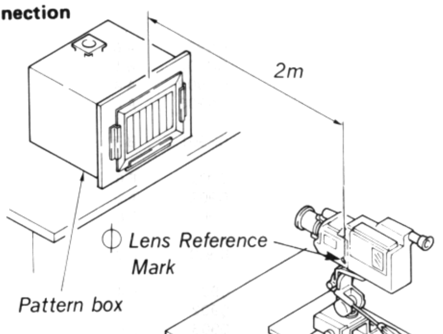
ERATOR) SCHEMATIC DIAGRAM


3
4
5
6
7
8
9
10
11
12
13
14
IC003
CXA1065M
CCD DRIVE
IC004
CXB0026AMR
CCD DRIVE
IC001
CXD1035BQ
TIMING GENERATOR
IC002
MB7114LPF
ROM
D007 1S2835
D005 1S2835
D006 1S2835
D004 1S2835
D008 1S2835
Q007 2SC4081 VOLTAGE SHIFT
Q003 NTM2369 LEVEL SHIFT
Q005 2SA1462 LEVEL SHIFT
Q002 2SC1623 VOLTAGE SHIFT
Q009 2SC4081
Q008 2SA1576
—VOLTAGE SHIFT—
Q004 2SA1462 LEVEL SHIFT
Q006 NTM2369 LEVEL SHIFT
D001 1S2837
D002 1S2835
Q001 2SA1576 5V SWITCH
VL
H2
H1
Vcc 2
Vcc 3
PG
GND(DR)
GND(TG)
SHP
SHD
SP1
SP2
SP3
SH1
SH2
SH3
P, BLK
CLP 3
CLP 1
CLP 2
GND(CL)
HTSG
CL
HD
VD
CK
GND(CK)

Note:

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, $\frac{1}{32}$ W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics. and tantalums.
- All variable and adjustable resistors have characteristics curve B, unless otherwise noted.
- : printed resistor.
- ▭ : panel designation.
- : fusible resistor.
- △ : internal component.
- : nonflammable resistor.
- — : B + bus.
- ⇨ : IN/OUT direction of B+, B− bus.
- ▭ : adjustment for repair.
- Voltage and waveform measuring conditions:
  - (1) Sample object: Pattern box color bars.
  - (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

1. Connection


2m
Lens Reference Mark
Pattern box

2. Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.

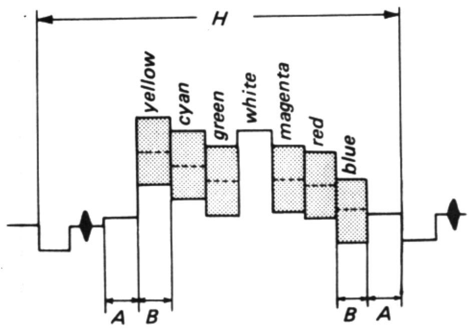

H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A
A = B

Fig. a Camera output waveform of TP801 on VC-24P board.

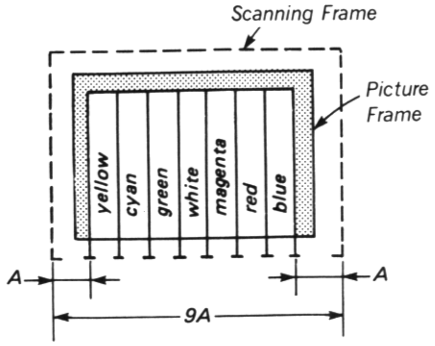
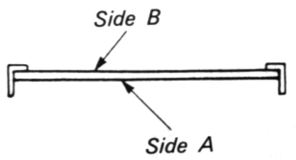

Scanning Frame
Picture Tube Frame
yellow
cyan
green
white
magenta
red
blue
A
A
9A

Fig. b Picture of TV monitor screen

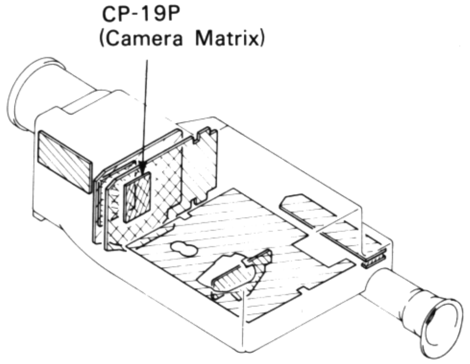
Note:

- ⊗ : Through hole.
- ▩ : Pattern from the side which enables seeing.
- ▩ : Pattern of the rear side.
- ▨ : Printed resistor.



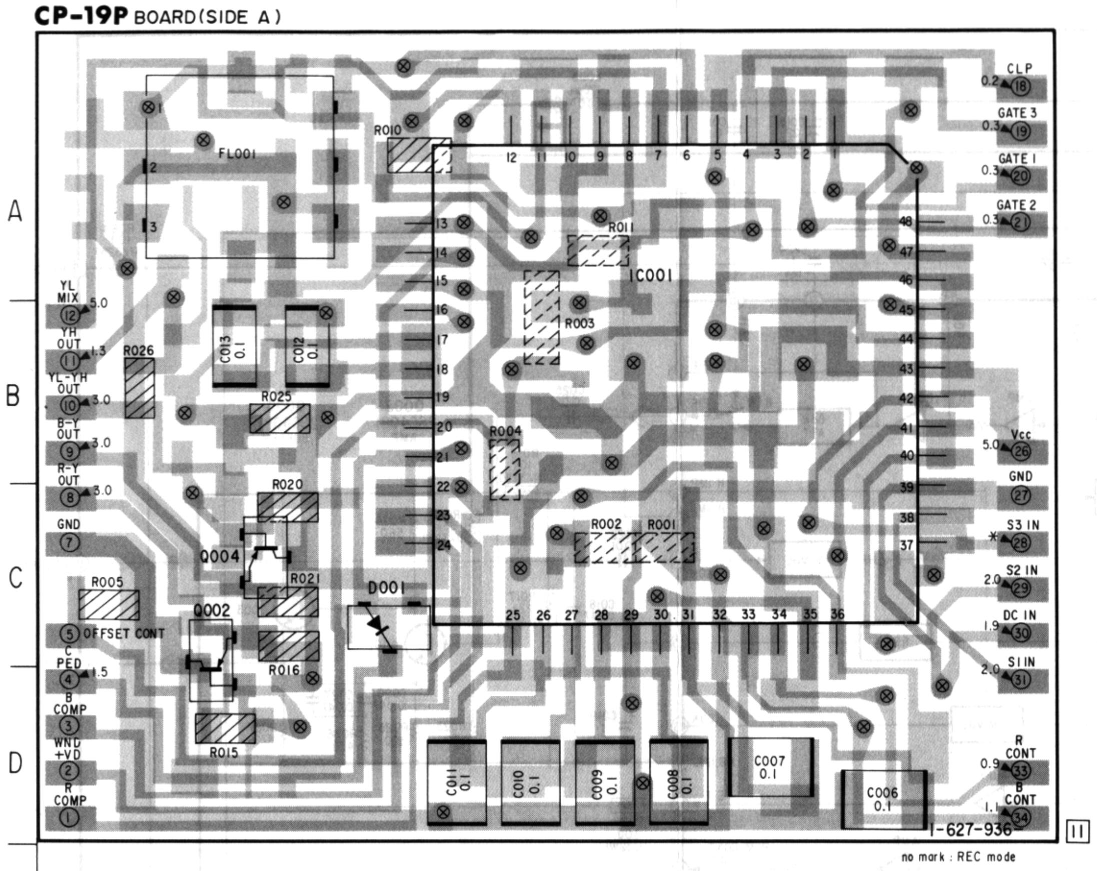
Side B
Side A

Note
Soldering side (SIDE A) : Parts on the soldering side being seen from the soldering are stated.
Component side (SIDE B) : Parts on the component side being seen from the component are stated.



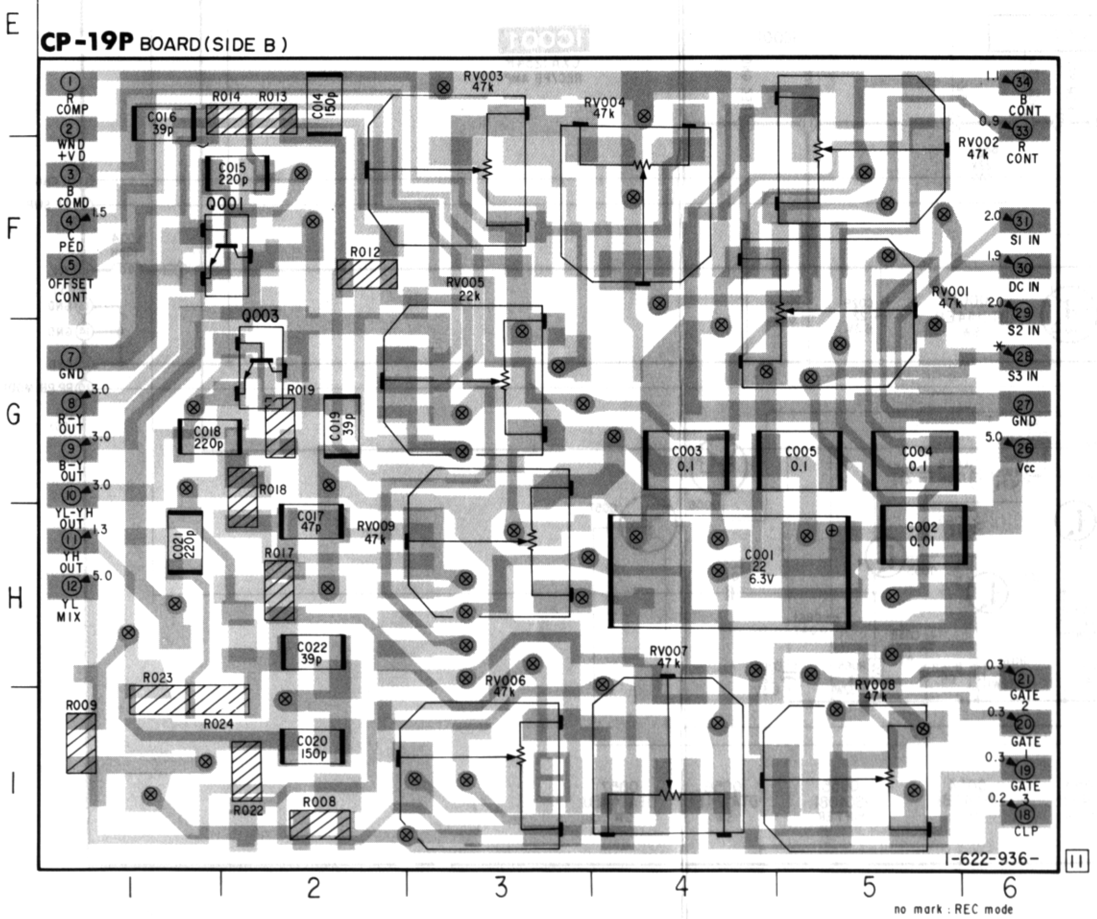
CP-19P
(Camera Matrix)

CP-19P(CAMERA MATRIX) PRINTED WIRING BOARD



CP-19P BOARD(SIDE A)
A
B
C
D
FL001
R010
R011
IC001
R003
R004
R002
R001
R026
C013 0.1
C012 0.1
R025
R020
R021
Q004
Q002
D001
R005
R016
R015
C011 0.1
C010 0.1
C009 0.1
C008 0.1
C007 0.1
C006 0.1
YL MIX
YH OUT
YL-YH OUT
B-Y OUT
R-Y OUT
GND
OFFSET CONT
PED
B COMP
WND +VD
R COMP
CLP
GATE 3
GATE 1
GATE 2
Vcc
GND
S3 IN
S2 IN
DC IN
S1 IN
R CONT
B CONT
1-627-936

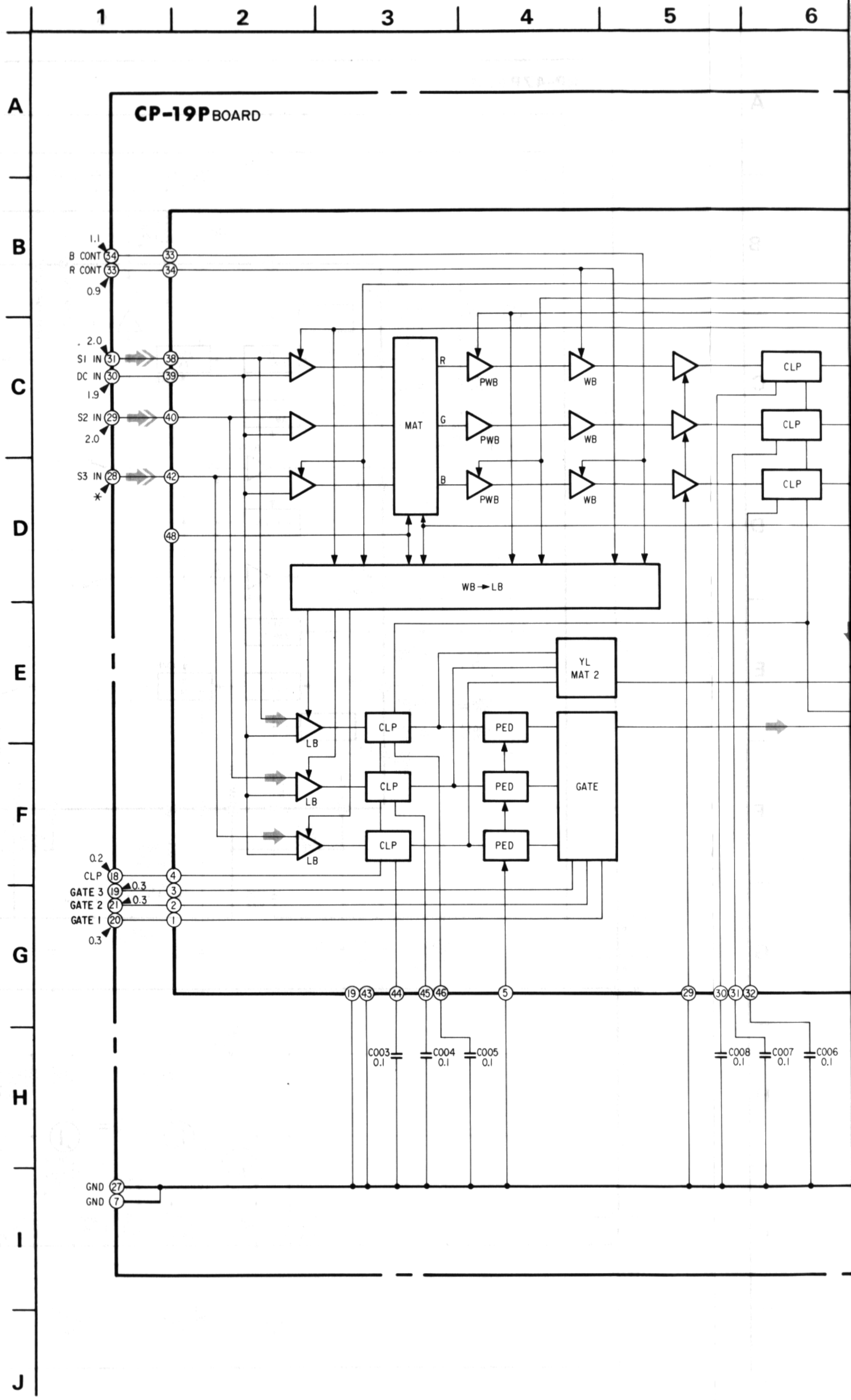
no mark : REC mode



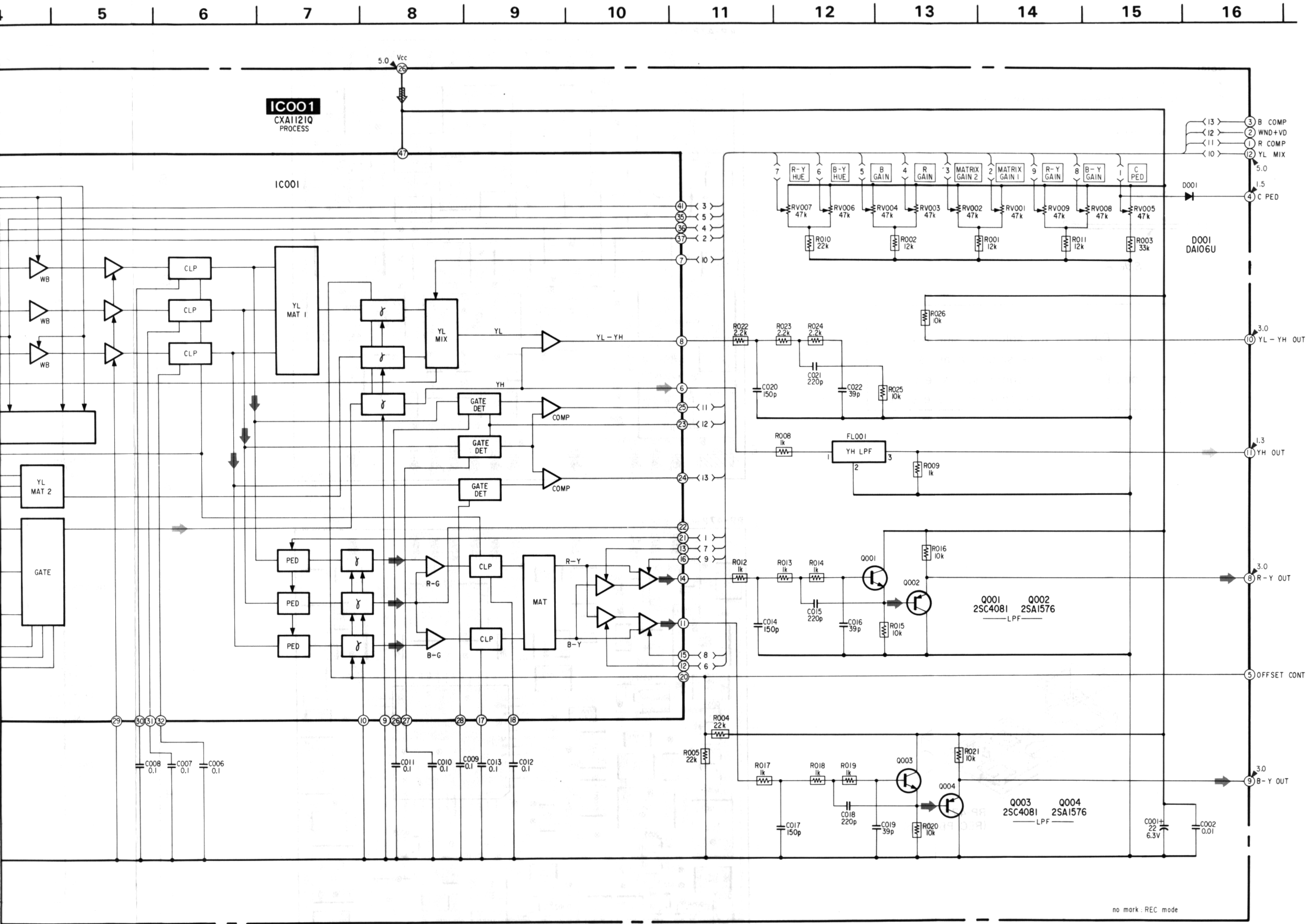
E
CP-19P BOARD(SIDE B)
F
G
H
I
R COMP
WND +VD
B COMP
PED
OFFSET CONT
GND
R-Y OUT
B-Y OUT
YL-YH OUT
YH OUT
YL MIX
C016 39p
R014
R013
C014 150p
C015 220p
Q001
R012
Q003
R019
C018 220p
C019 39p
R018
C017 47p
C021 220p
R017
C022 39p
R023
R024
R009
C020 150p
R022
R008
RV003 47k
RV004 47k
RV002 47k
RV005 22k
RV001 47k
RV009 47k
RV006 47k
RV007 47k
RV008 47k
C003 0.1
C005 0.1
C004 0.1
C002 0.01
C001 22 6.3V
B CONT
R CONT
S1 IN
DC IN
S2 IN
S3 IN
GND
Vcc
GATE 2
GATE 1
GATE 3
CLP
1-622-936-
1
2
3
4
5
6

no mark : REC mode

CP-19P(CAMERA MATRIX) SCHEMATIC DIAGRAM



1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
J
CP-19P BOARD
B CONT
R CONT
S1 IN
DC IN
S2 IN
S3 IN
MAT
PWB
WB
CLP
WB→LB
YL MAT 2
LB
CLP
PED
GATE
CLP
GATE 3
GATE 2
GATE 1
GND
GND
C003 0.1
C004 0.1
C005 0.1
C008 0.1
C007 0.1
C006 0.1

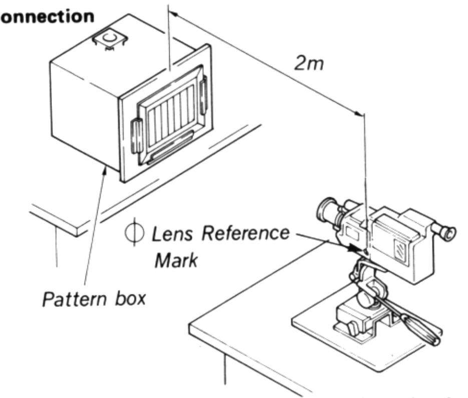

5
6
7
8
9
10
11
12
13
14
15
16
5.0 Vcc
IC001
CXA1121Q
PROCESS
IC001
WB
CLP
YL MAT 1
YL MAT 2
GATE
γ
YL MIX
YL
YH
YL – YH
GATE DET
COMP
PED
R-G
B-G
CLP
MAT
R-Y
B-Y
R-Y HUE
B-Y HUE
B GAIN
R GAIN
MATRIX GAIN 2
MATRIX GAIN 1
R-Y GAIN
B-Y GAIN
C PED
RV007 47k
RV006 47k
RV004 47k
RV003 47k
RV002 47k
RV001 47k
RV009 47k
RV008 47k
RV005 47k
R010 22k
R002 12k
R001 12k
R011 12k
R003 33k
D001
D001 DA106U
R026 10k
R022 2.2k
R023 2.2k
R024 2.2k
C021 220p
C020 150p
C022 39p
R025 10k
R008 1k
FL001
YH LPF
R009 1k
R012 1k
R013 1k
R014 1k
Q001
Q002
R016 10k
C015 220p
C014 150p
C016 39p
R015 10k
Q001 2SC4081
Q002 2SA1576
LPF
R004 22k
R005 22k
R017 1k
R018 1k
R019 1k
Q003
Q004
R021 10k
C018 220p
C017 150p
C019 39p
R020 10k
Q003 2SC4081
Q004 2SA1576
LPF
C001 22 6.3V
C002 0.01
C008 0.1
C007 0.1
C006 0.1
C011 0.1
C010
C009 0.1
C013 0.1
C012 0.1
3 B COMP
2 WND+VD
1 R COMP
12 YL MIX
5.0
1.5
4 C PED
3.0
10 YL – YH OUT
1.3
11 YH OUT
3.0
8 R-Y OUT
5 OFFSET CONT
3.0
9 B-Y OUT

no mark : REC mode

Note:

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the head.
- All resistors are in ohms, 1/32 W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : printed resistor.
- ▭ : panel designation.
- ▭ : fusible resistor.
- △ : internal component.
- ▭ : nonflammable resistor.
- ━ : B + bus.
- ⇨ : IN/OUT direction of B+, B – bus.
- ▭ : adjustment for repair.
- Voltage and waveform measuring conditions:
  (1) Sample object: Pattern box color bars.
  (2) Voltage values: Relative to ground, measured with a DC digital multimeter (impedance 10M-ohm or more).

1. Connection


2m
Lens Reference Mark
Pattern box

2. Adjust the zooming of camera and the tripod so that the output waveform of Fig. a and the picture of Fig. b can be obtain.

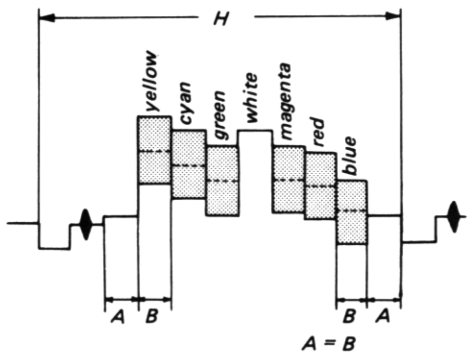

H
yellow
cyan
green
white
magenta
red
blue
A
B
B
A
A = B

Fig. a Camera output waveform of TP801 on VC-24P board.

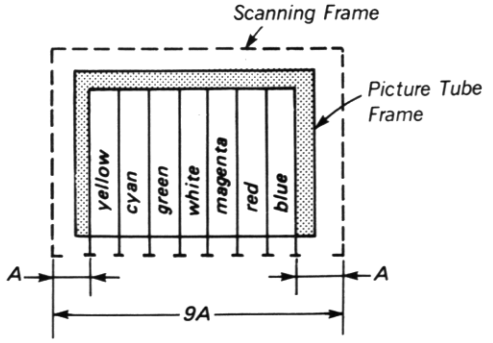
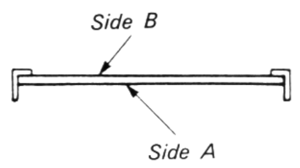

Scanning Frame
Picture Tube Frame
yellow
cyan
green
white
magenta
red
blue
A
A
9A

Fig. b Picture of TV monitor screen.

- **Signal path**
  - ➡ : REC Y Signal
  - ➡ : REC CHROMA Signal
  - ➡ : REC Y/CHROMA Signal

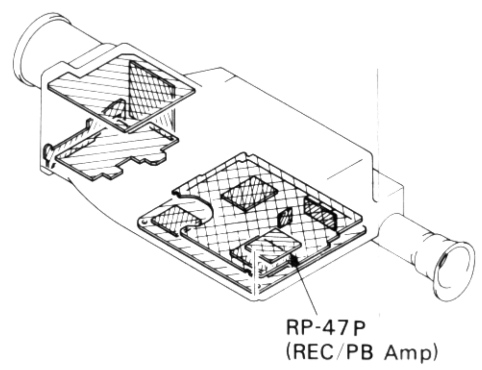
Note:

- ⊗ : Through hole.
- ▒ : Pattern from the side which enables seeing.
- ▨ : Printed resistor.


Side B
Side A

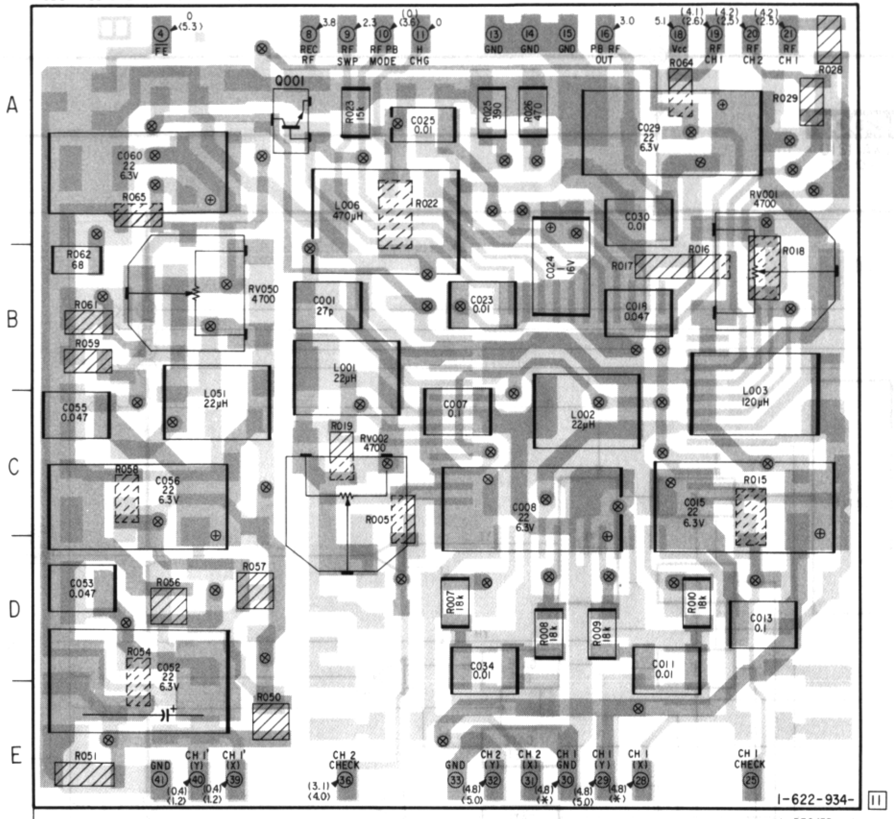
Note

Soldering side (SIDE A)	: Parts on the soldering side being seen from the soldering are stated.
Component side (SIDE B)	: Parts on the component side being seen from the component are stated.


RP-47P
(REC/PB Amp)

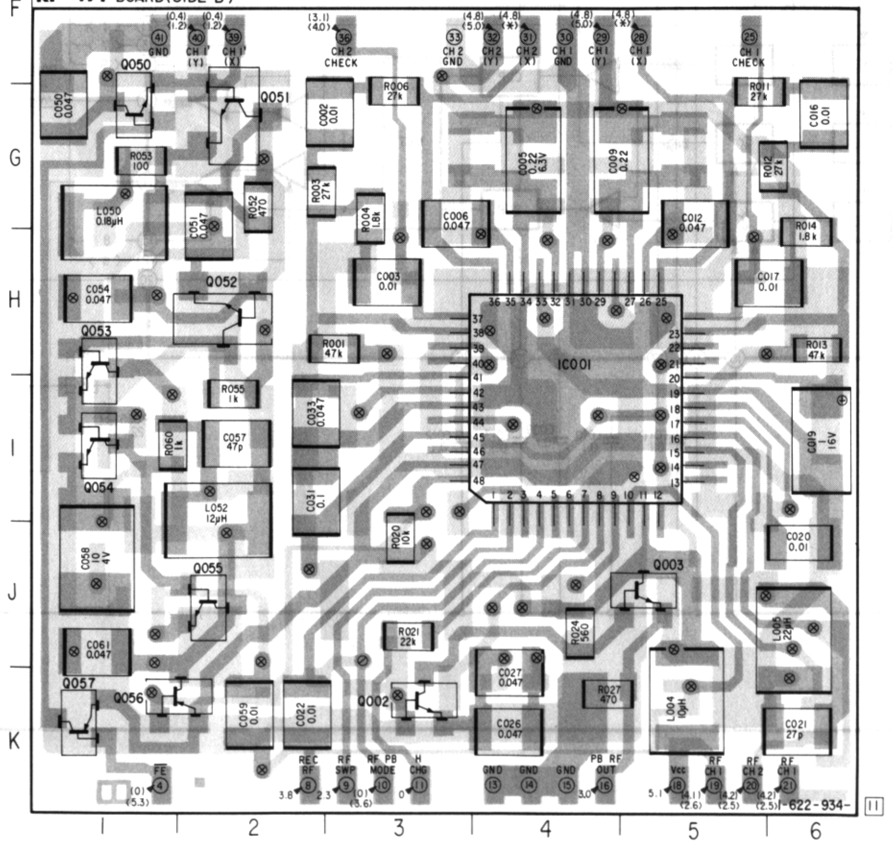
RP-47P(REC/PB AMP) PRINTED WIRING BOARD

RP-47P BOARD(SIDE A)


A
B
C
D
E
REC RF
RF SWP
RF PB MODE
H CHG
GND
PB RF OUT
Vcc
RF CH1
RF CH2
Q001
C060 22 6.3V
R065
R062 68
RV050 4700
L006 470μH
R022
C025 0.01
C029 22 6.3V
RV001 4700
R029
R028
R064
C001 27p
C023 0.01
C024 16V
R017
R016
R018
L051 22μH
L001 22μH
C007 0.1
L002 22μH
L003 120μH
R019
RV002 4700
R005
C056 22 6.3V
C008 22 6.3V
C015 22 6.3V
R015
R007 18k
R008 18k
R009 18k
R010 18k
C013 0.1
C034 0.01
C011 0.01
C053 0.047
C052 22 6.3V
R057
R056
R054
R050
R051
GND
CH1 (Y)
CH1 (X)
CH2 CHECK
CH2 (Y)
CH2 (X)
CH1 GND
CH2 GND
CH1 CHECK
1-622-934- 11

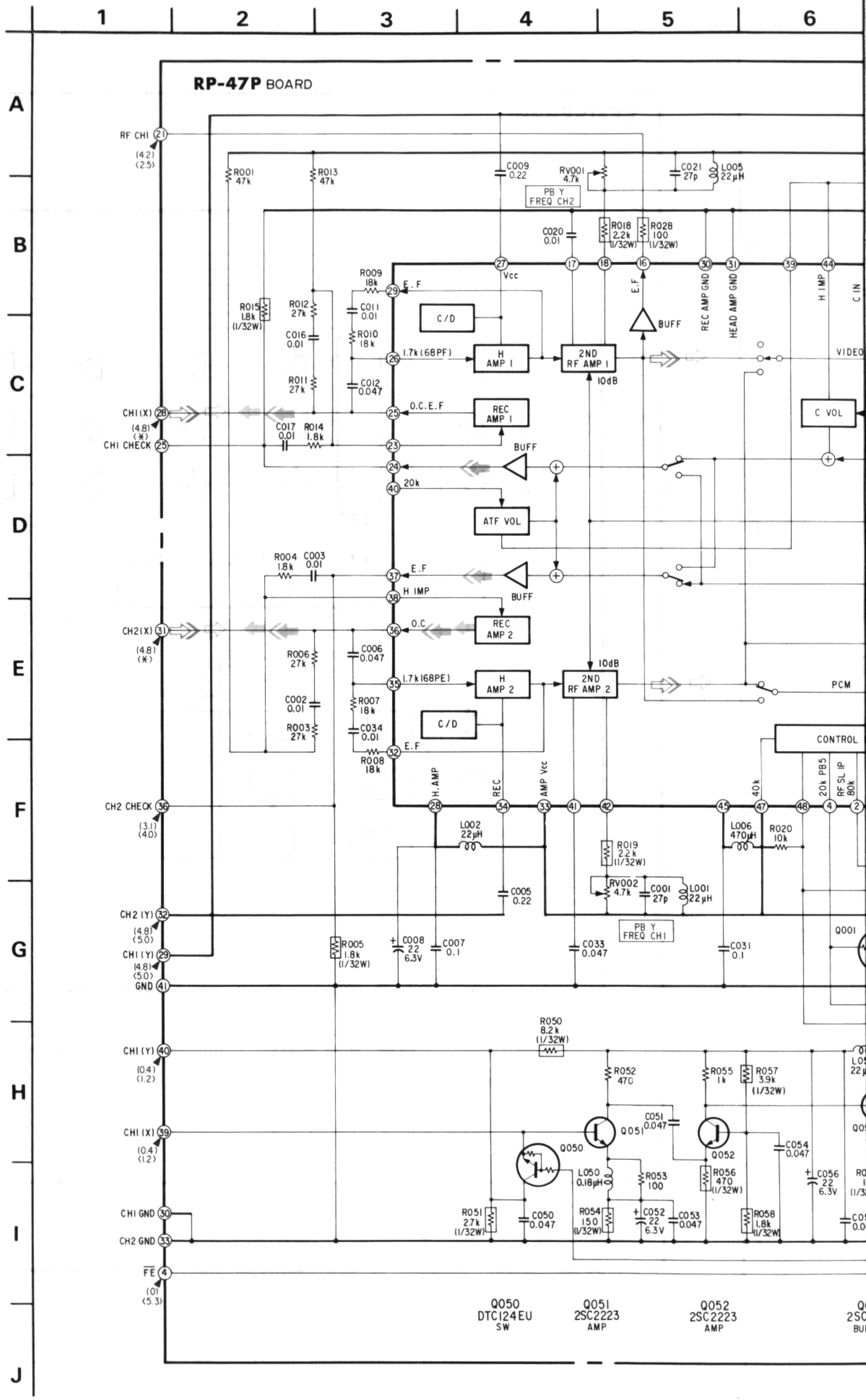
no mark : REC/PB mode
( ) : REC mode
( ) : PB mode
Marked ※ is not able to measure the voltage of its position

RP-47P BOARD(SIDE B)

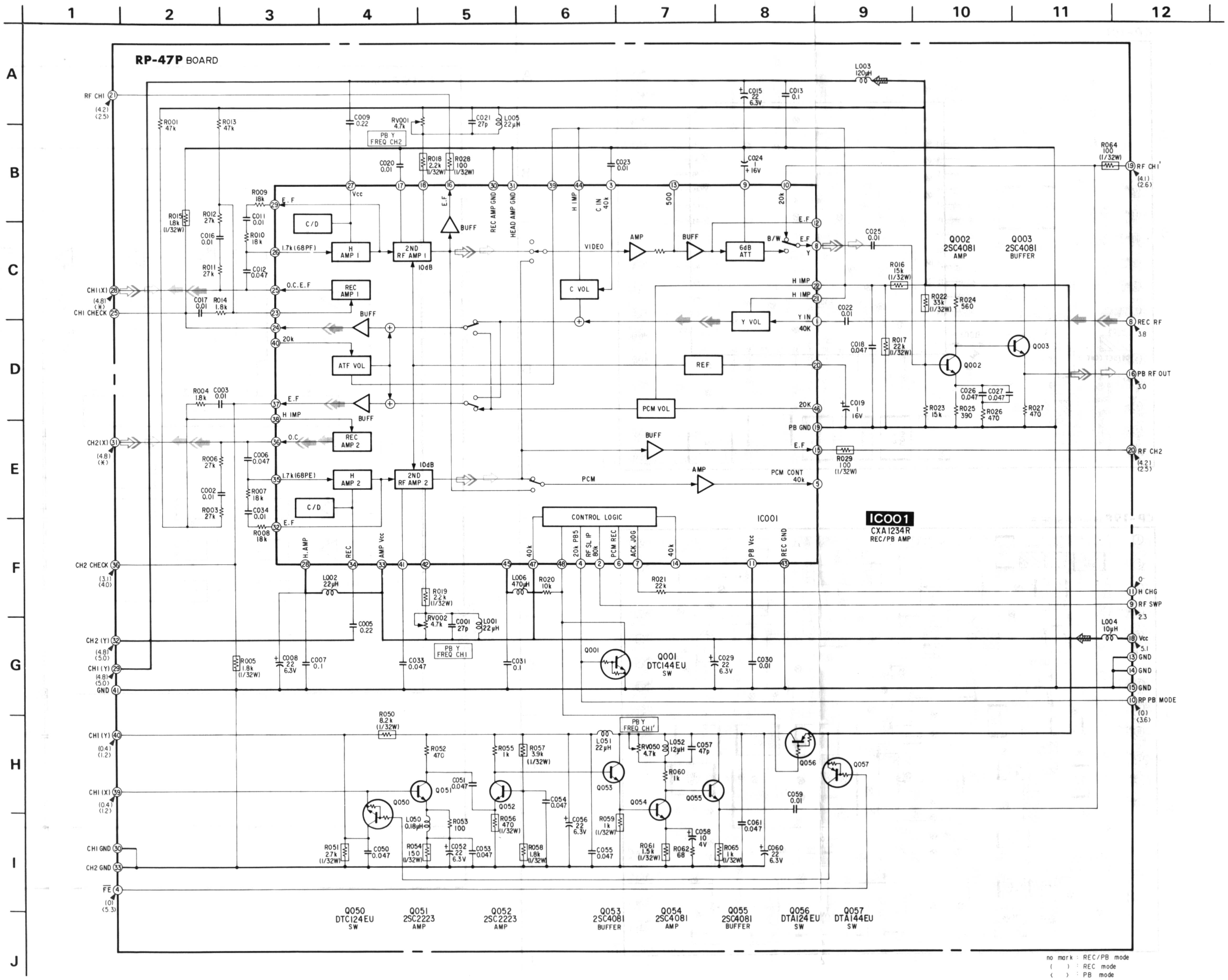

F
G
H
I
J
K
1
2
3
4
5
6
Q050
Q051
Q052
Q053
Q054
Q055
Q056
Q057
Q002
Q003
IC001
C050 0.047
R053 100
L050 0.18μH
C051 0.047
R052 470
C002 0.01
R006 27k
C033 0.22 6.3V
C009 0.22
R011 27k
C016 0.01
R012 27k
R014 1.8k
C054 0.047
R003 27k
R004 1.8k
C006 0.047
C012 0.047
C003 0.01
C017 0.01
R001 47k
R013 47k
R055 1k
R056 1k
C057 47p
C034 0.047
C031 0.1
L052 12μH
C058 10 4V
C061 0.047
R020 10k
R021 22k
R024 560
C027 0.047
C026 0.047
R027 470
L004
C020 0.01
C021 27p
C059 0.01
C022 0.01
C019 16V
FE
1-622-934- 11

no mark : REC/PB mode
( ) : REC mode
( ) : PB mode
Marked ※ is not able to measure the voltage of its position

RP-47P(REC/PB AMP) SECHEMATIC DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
J
RP-47P BOARD
RF CH1
CH1(X)
CH1 CHECK
CH2(X)
CH2 CHECK
CH2 (Y)
CH1 (Y)
GND
CH1 (Y)
CH1 (X)
CH1 GND
CH2 GND
FE
R001 47k
R013 47k
C009 0.22
RV001 4.7k
PB Y FREQ CH2
C021 27p
L005 22μH
C020 0.01
R018 2.2k (1/32W)
R028 100 (1/32W)
R009 18k
R015 1.8k (1/32W)
R012 27k
C011 0.01
C016 0.01
R010 18k
R011 27k
C012 0.047
C017 0.01
R014 1.8k
E.F
Vcc
C/D
H AMP 1
2ND RF AMP 1
10dB
BUFF
REC AMP GND
HEAD AMP GND
H IMP
C IN
VIDEO
REC AMP 1
C VOL
20k
ATF VOL
R004 1.8k
C003 0.01
H IMP
O.C
REC AMP 2
R006 27k
C006 0.047
1.7k(68PF)
H AMP 2
2ND RF AMP 2
PCM
C002 0.01
R007 18k
R003 27k
C034 0.01
R008 18k
CONTROL
H.AMP
REC
AMP Vcc
L002 22μH
C005 0.22
R019 2.2k (1/32W)
RV002 4.7k
C001 27p
L001 22μH
PB Y FREQ CH1
L006 470μH
R020 10k
R005 1.8k (1/32W)
C008 22 6.3V
C007 0.1
C033 0.047
C031 0.1
Q001
R050 8.2k (1/32W)
R052 470
R055 1k
R057 3.9k (1/32W)
C051 0.047
Q051
Q052
Q050
L050 0.18μH
R053 100
R056 470 (1/32W)
C054 0.047
C056 22 6.3V
R051 2.7k (1/32W)
C050 0.047
R054 150 (1/32W)
C052 22 6.3V
C053 0.047
R058 1.8k (1/32W)
Q050 DTC124EU SW
Q051 2SC2223 AMP
Q052 2SC2223 AMP

RP-47P(REC/PB AMP) SECHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
RP-47P BOARD
RF CH1 ②
(4.2)
(2.5)
CH1(X) ㉘
(4.8)
(∗)
CH1 CHECK ㉕
CH2(X) ㉛
(4.8)
(∗)
CH2 CHECK ㊱
(3.1)
(4.0)
CH2 (Y) ㉜
(4.8)
(5.0)
CH1 (Y) ㉙
(4.8)
(5.0)
GND ㊶
CH1 (Y) ㊵
(0.4)
(1.2)
CH1 (X) ㊴
(0.4)
(1.2)
CH1 GND ㉚
CH2 GND ㉝
FE ④
(0)
(5.3)
⑲ RF CH1'
(4.1)
(2.6)
⑧ REC RF
3.8
⑯ PB RF OUT
3.0
⑳ RF CH2
(4.2)
(2.5)
⑪ H CHG
⑨ RF SWP
2.3
⑱ Vcc
5.1
⑬ GND
⑭ GND
⑮ GND
⑩ RP PB MODE
(0)
(3.6)
C/D
H AMP 1
2ND RF AMP 1
REC AMP 1
ATF VOL
REC AMP 2
H AMP 2
2ND RF AMP 2
C VOL
Y VOL
REF
PCM VOL
6dB ATT
CONTROL LOGIC
BUFF
AMP
VIDEO
PCM
PCM CONT
B/W
E.F
O.C.E.F
H IMP
Y IN
PB GND
REC AMP GND
HEAD AMP GND
C IN
20k PB5
RF SL IP
PCM REC
ACK JOG
PB Vcc
REC GND
H.AMP
REC
AMP Vcc
10dB
1.7k(68PF)
1.7k(68PE)
IC001
CXA1234R
REC/PB AMP
PB Y FREQ CH2
PB Y FREQ CH1
PB Y FREQ CH1'
L003 120μH
L005 22μH
L002 22μH
L006 470μH
L001 22μH
L004 10μH
L050 0.18μH
L051 22μH
L052 12μH
RV001 4.7k
RV002 4.7k
RV050 4.7k
R064 100 (1/32W)
R029 100 (1/32W)
Q001
DTC144EU
SW
Q002
2SC4081
AMP
Q003
2SC4081
BUFFER
Q050
DTC124EU
SW
Q051
2SC2223
AMP
Q052
2SC2223
AMP
Q053
2SC4081
BUFFER
Q054
2SC4081
AMP
Q055
2SC4081
BUFFER
Q056
DTA124EU
SW
Q057
DTA144EU
SW

no mark : REC/PB mode
( ) : REC mode
〈 〉 : PB mode
Marked ∗ is not able to measure the voltage of its position

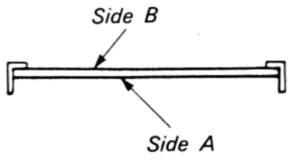
Note:

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the head.
- All resistors are in ohms, $\frac{1}{32}$ W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊣▭⊢ : printed resistor.
- ▭ : panel designation.
- ⊣▣⊢ : Nonflammable resistor
- ─── : B+ bus.
- ⇨ : IN/OUT direction of B+, B− bus.
- ▭ : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
  (Remove the W331 on VA-36 board.
  Input point: Pin ① of W331 on VA-36 board.
  (75Ω terminated))
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- **Signal path**
  - ➡ : REC Y/CHROMA Signal
  - ⇨ : PB Y/CHROMA Signal
  - ➡ : REC AUDIO Signal
  - ⇨ : PB AUDIO Signal

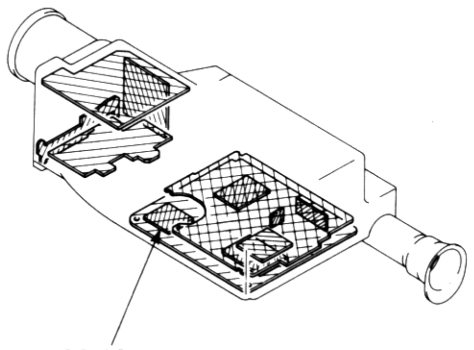
CC-10(CHROMA PROCESS, APC PULSE GENERATOR) PRINTED WIRING BOARD

Note:

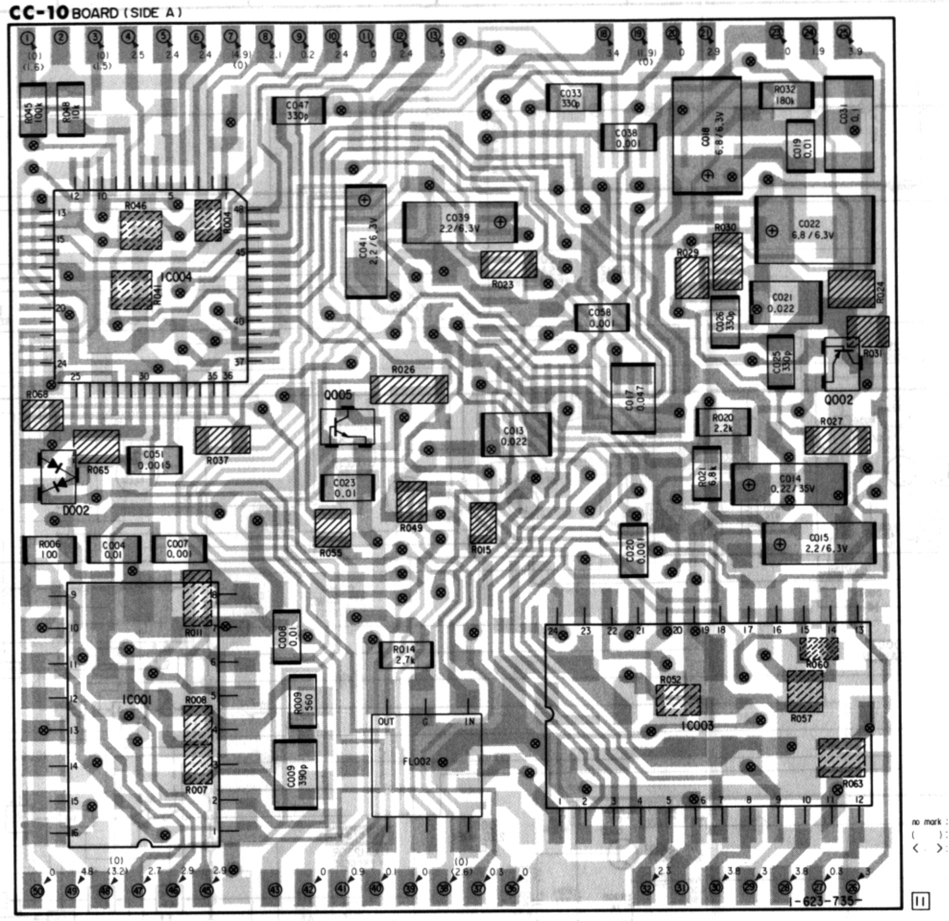
- ⊠ : Through hole.
- ▒ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.
- ▨ : Printed resistor.


Side B
Side A

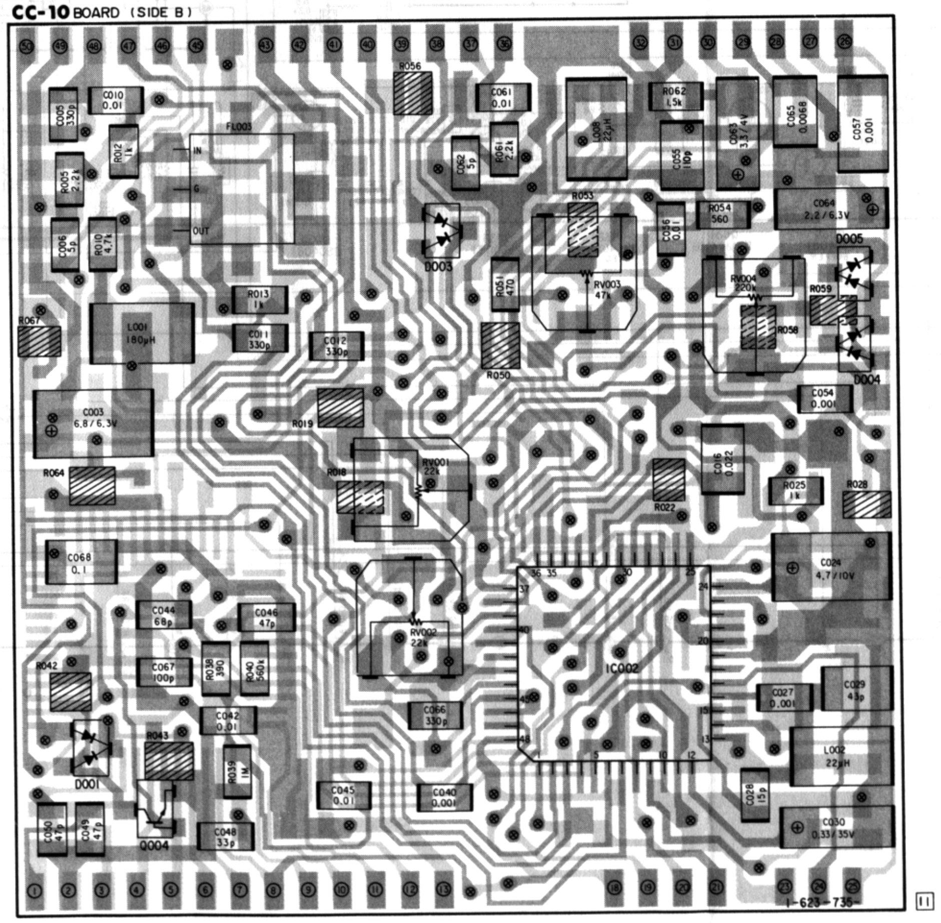
Note	
Soldering side (SIDE A)	: Parts on the soldering side being seen from the soldering are stated.
Component side (SIDE B)	: Parts on the component side being seen from the component are stated.



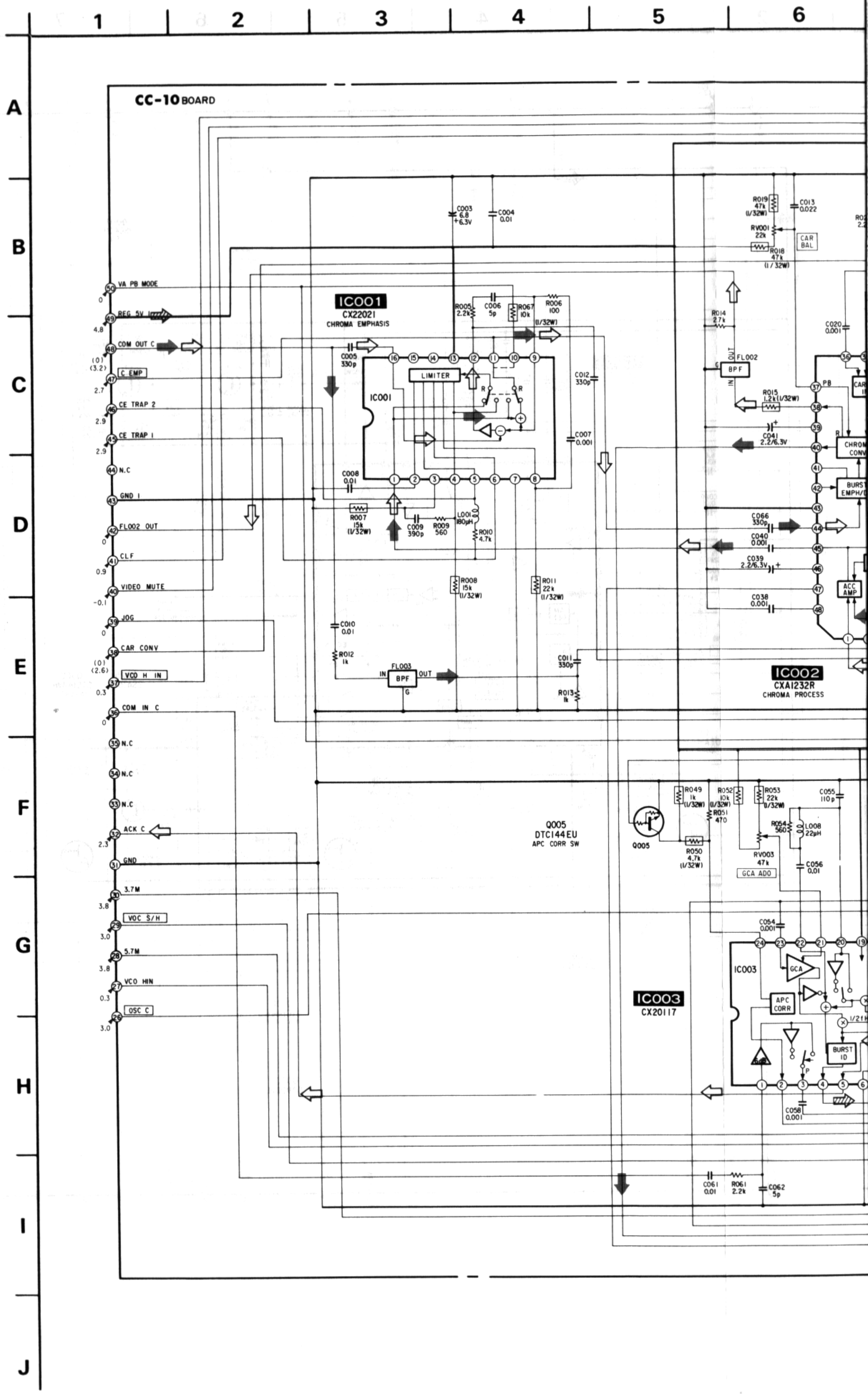
CC-10
(Chroma Process, APC Pulse Generator)

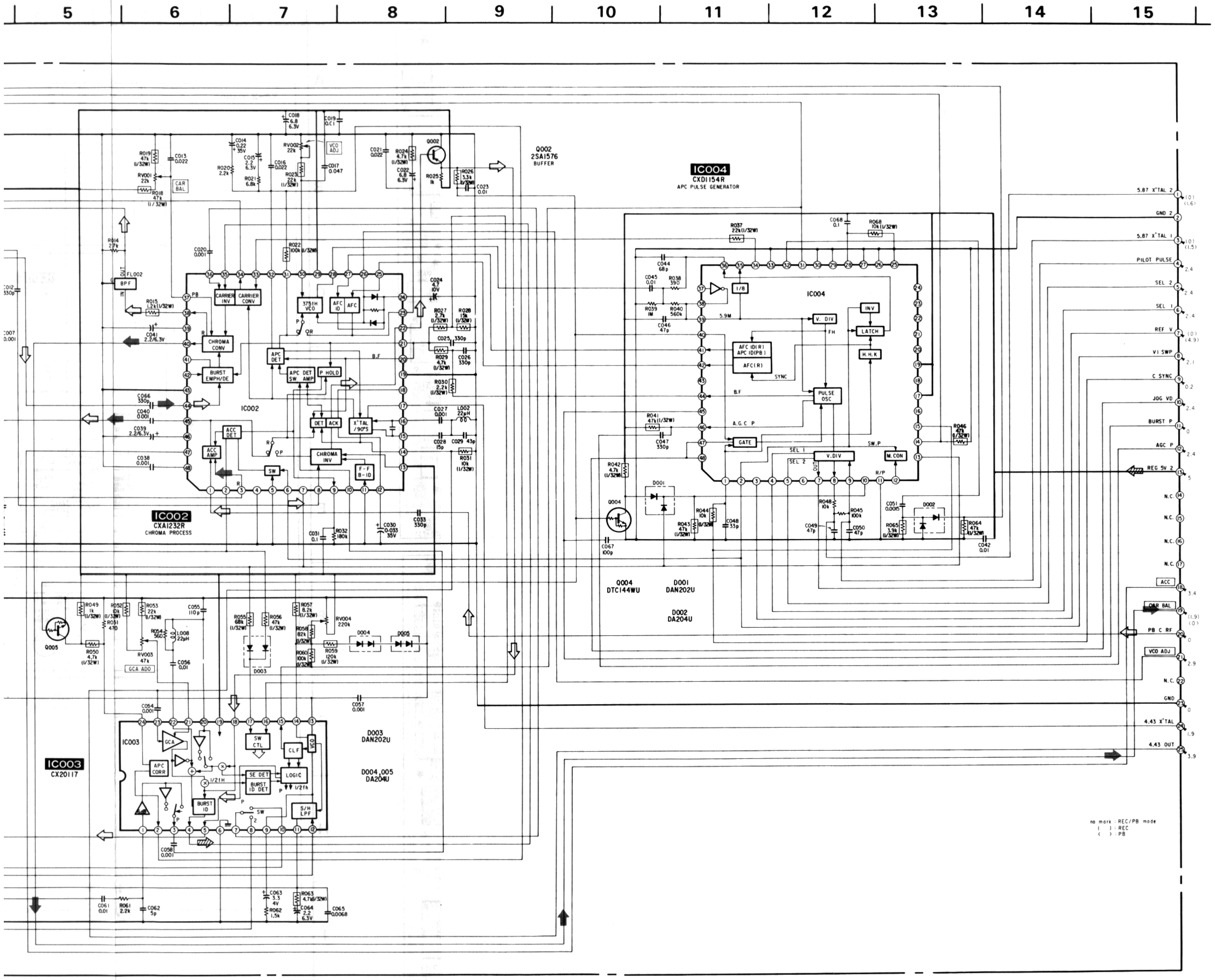

CC-10 BOARD (SIDE A)
IC001
IC003
IC004
Q002
Q005
D002
FL002
1-623-735-

no mark : REC/PB mode
( ) : REC mode
< > : PB mode


CC-10 BOARD (SIDE B)
IC002
FL001
L001 180μH
RV001
RV002
RV003
D001
D003
D004
Q004
Q005
1-623-735-

CC-10(CHROMA PROCESS, APC PULSE GENERATOR) SCHEMATIC DIAGRAM

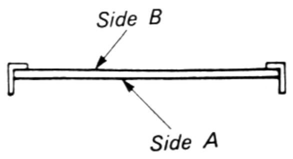

1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
J
CC-10 BOARD
IC001
CX22021
CHROMA EMPHASIS
LIMITER
IC002
CXA1232R
CHROMA PROCESS
IC003
CX20117
Q005
DTC144EU
APC CORR SW
VA PB MODE
REG 5V
COM OUT C
C EMP
CE TRAP 2
CE TRAP 1
N.C
GND 1
FL002 OUT
CLF
VIDEO MUTE
JOG
CAR CONV
VCO H IN
COM IN C
ACK C
GND
3.7M
VDC S/H
VCO HIN
OSC C
FL002
BPF
FL003
BPF
CAR BAL
GCA ADJ
GCA
APC CORR
BURST ID
ACC AMP


5
6
7
8
9
10
11
12
13
14
15
IC002
CXA1232R
CHROMA PROCESS
IC004
CXD1154R
APC PULSE GENERATOR
IC003
CX20117
Q002
2SA1576
BUFFER
Q004
DTC144WU
D001
DAN202U
D002
DA204U
D003
DAN202U
D004,005
DA204U
Q005
CAR BAL
VCO ADJ
GCA ADJ
5.87 X'TAL 2 ① (0) (1.6)
GND 2 ②
5.87 X'TAL 1 ③ (0) (1.5)
PILOT PULSE ④ 2.4
SEL 2 ⑤ 2.4
SEL 1 ⑥ 2.4
REF V ⑦ (0) (4.9)
V1 SWP ⑧ 2.1
C SYNC ⑨ 0.2
JOG VD ⑩ 2.4
BURST P ⑪ 0
AGC P ⑫ 2.4
REG 5V 2 ⑬ 5
N.C. ⑭
N.C. ⑮
N.C. ⑯
N.C. ⑰
ACC ⑱ 3.4
CAR BAL ⑲ (1.9) (0)
PB C RF ⑳ 0
VCO ADJ ㉑ 2.9
N.C. ㉒
GND ㉓ 0
4.43 X'TAL ㉔ 1.9
4.43 OUT ㉕ 3.9
no mark : REC/PB mode
( ) : REC
〈 〉 : PB

Note:

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the head.
- All resistors are in ohms, 1/16 W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : panel designation.
- ▭ : fusible resistor.
- △ : internal component.
- ▭ : nonflammable resistor.
- ━ : B + bus.
- ⇨ : IN/OUT direction of B+, B– bus.
- ▭ : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
  (Remove the W331 on VA-36 board.
  Input point: Pin ① of W331 on VA-36 board.
  (75Ω terminated))
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- **Signal path**
  - ➡ : REC CHROMA Signal
  - ⇨ : PB CHROMA Signal

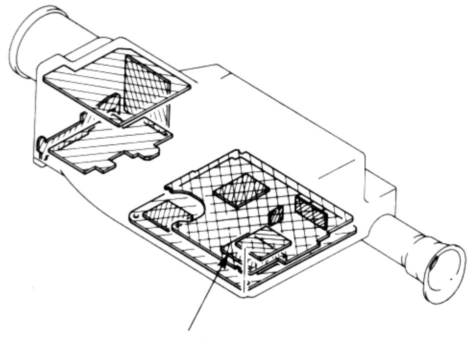
Note:
- ⌧ : Through hole.
- ▒ : Pattern from the side which enables seeing.
- Pattern of the rear side.
- ▨ : Printed resistor.


Side B
Side A

Note

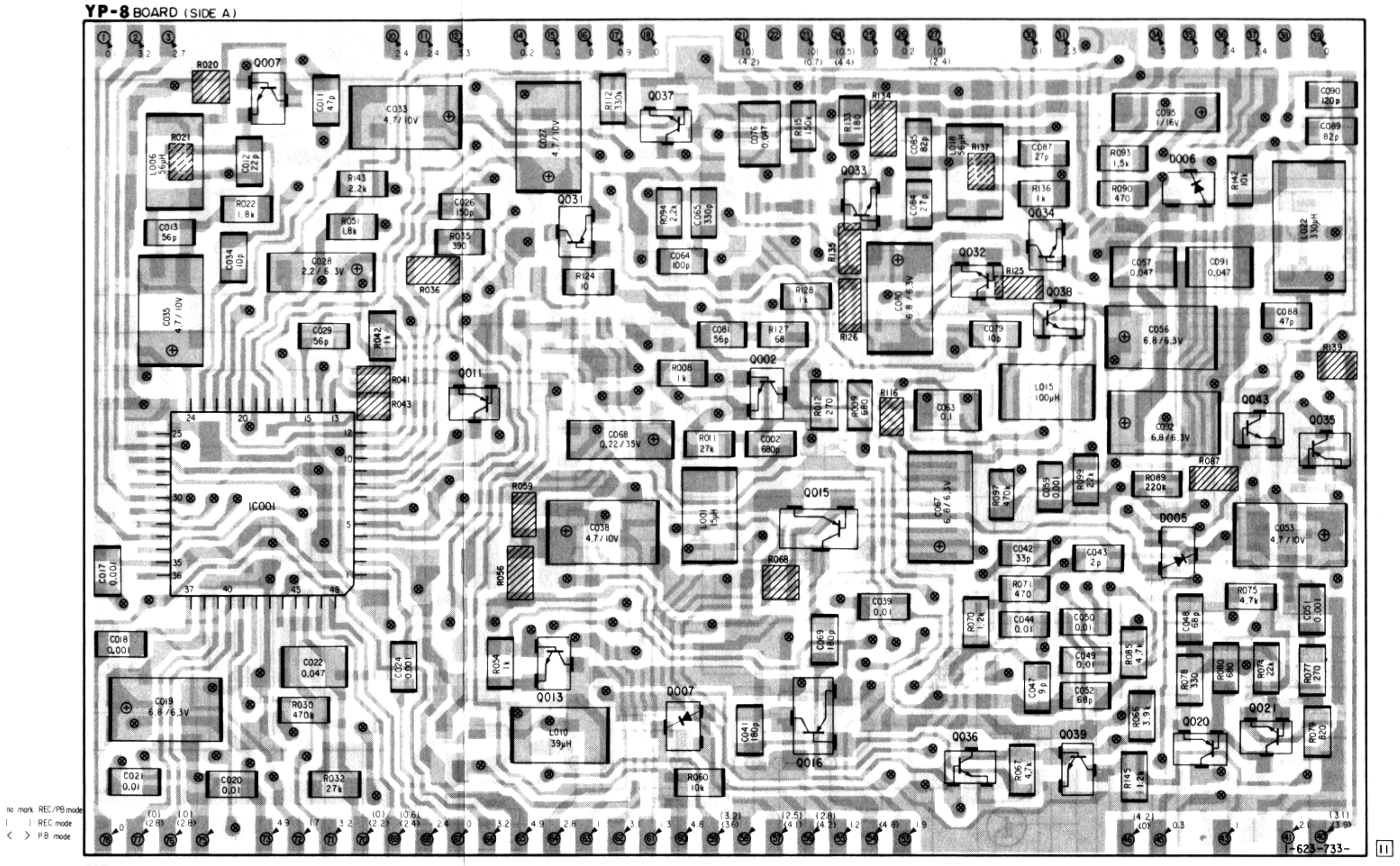
Soldering side (SIDE A) : Parts on the soldering side being seen from the soldering are stated.

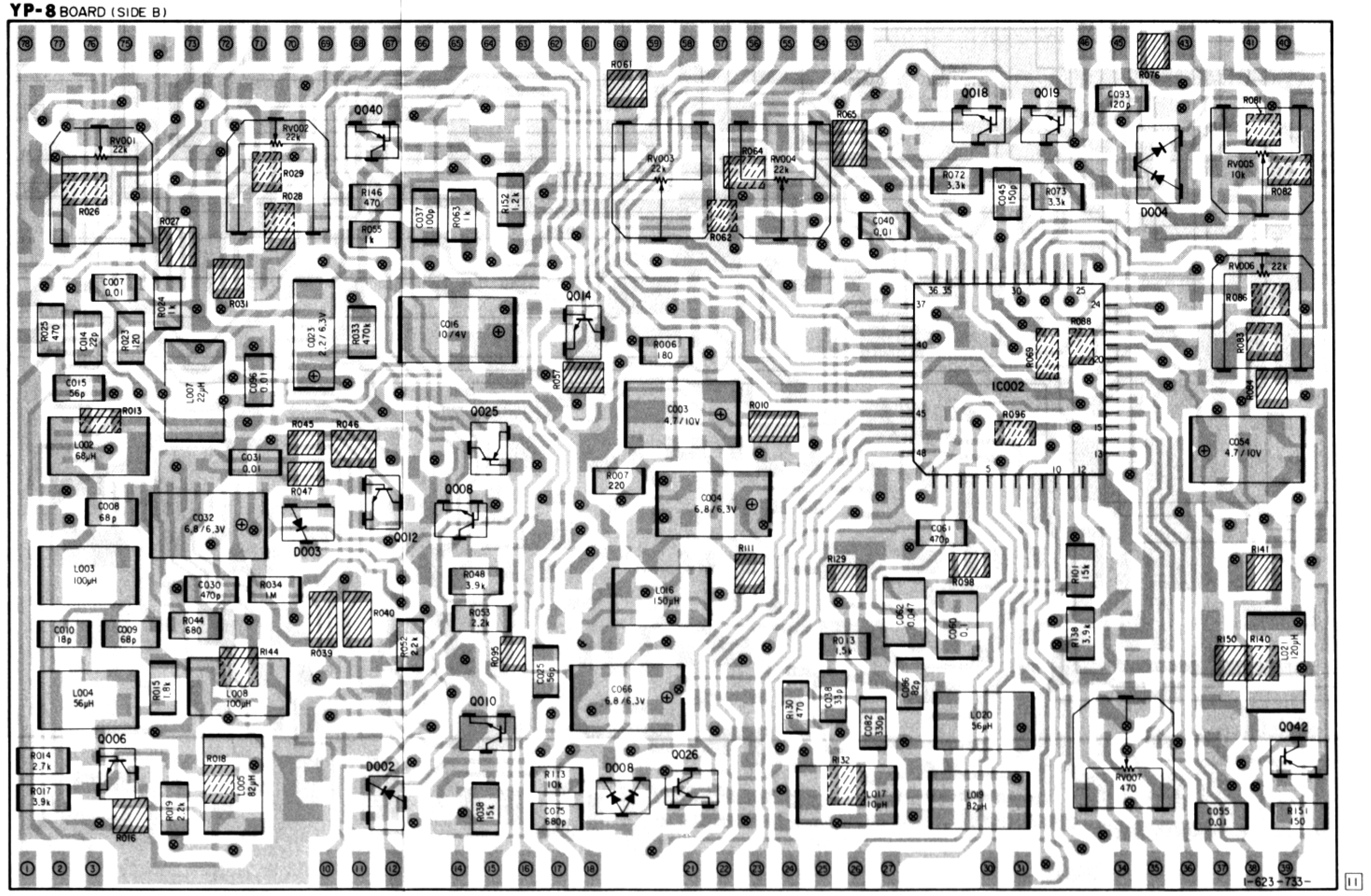
Component side (SIDE B) : Parts on the component side being seen from the component are stated.


YP-8
(Y Process, Comb Filter)

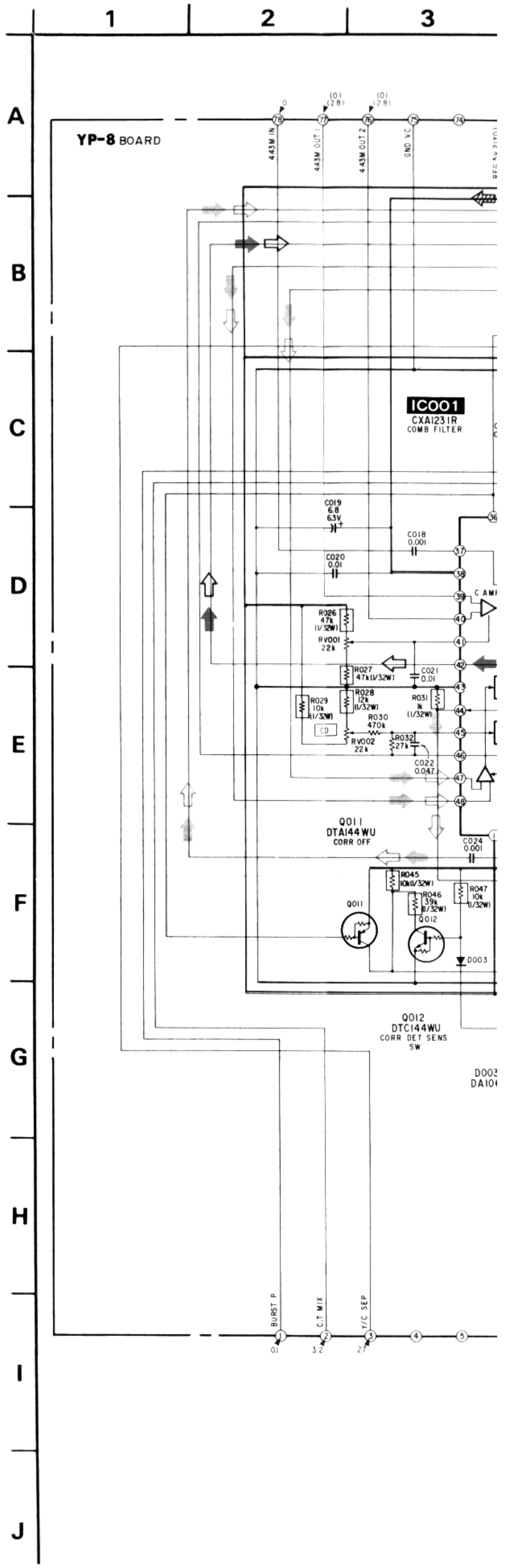
Note:
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/16 W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊟ : printed resistor.
- ▭ : panel designation.
- ⊟ : fusible resistor.
- △ : internal component.
- ⊟ : nonflammable resistor.
- ━ : B + bus.
- ⇨ : IN/OUT direction of B+, B− bus.
- ▭ : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
  (Remove the W331 on VA-36 board.
  Input point: Pin ① of W331 on VA-36 board.
  (75Ω terminated))
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

YP-8(Y PROCESS, COMB FILTER) PRINTED WIRING BOARD

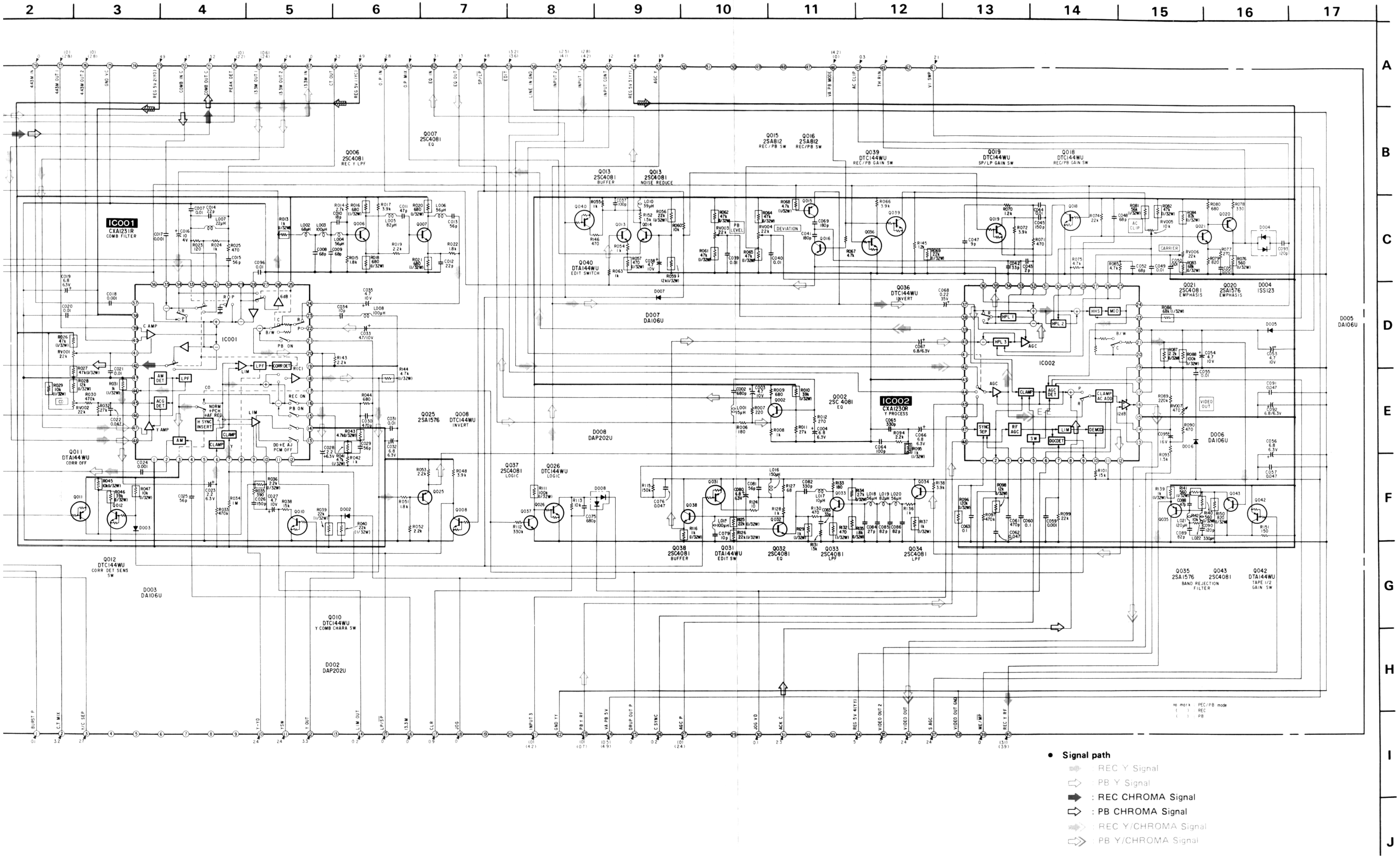

YP-8 BOARD (SIDE A)
IC001
1-623-733-11


YP-8 BOARD (SIDE B)
IC002
1-623-733-11

YP-8(Y PROCESS, COMB FILTER) SCHEMATIC DI

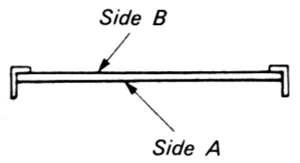

1
2
3
A
B
C
D
E
F
G
H
I
J
YP-8 BOARD
IC001
CXA1231R
COMB FILTER
Q011
DTA144WU
CORR OFF
Q012
DTC144WU
CORR DET SENS SW

OMB FILTER) SCHEMATIC DIAGRAM

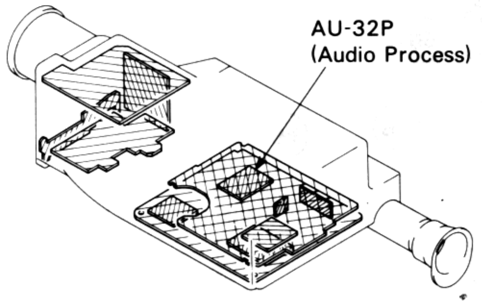

2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
IC001
CXA1231R
COMB FILTER
IC002
CXA1230R
Y PROCESS
Q006
2SC4081
REC Y LPF
Q007
2SC4081
EQ
Q013
2SC4081
BUFFER
Q013
2SC4081
NOISE REDUCE
Q015
2SA812
REC/PB SW
Q016
2SA812
REC/PB SW
Q039
DTC144WU
REC/PB GAIN SW
Q019
DTC144WU
SP/LP GAIN SW
Q018
DTC144WU
REC/PB GAIN SW
Q040
DTA144WU
EDIT SWITCH
D007
DA106U
Q036
DTC144WU
INVERT
Q021
2SC4081
EMPHASIS
Q020
2SA1576
EMPHASIS
D004
1SS123
D005
DA106U
Q002
2SC4081
EQ
Q025
2SA1576
Q008
DTA144WU
INVERT
D008
DAP202U
Q011
DTA144WU
CORR OFF
Q037
2SC4081
LOGIC
Q026
DTC144WU
LOGIC
D006
DA106U
Q012
DTC144WU
CORR DET SENS SW
D003
DA106U
Q038
2SC4081
BUFFER
Q031
DTA144WU
EDIT SW
Q032
2SC4081
EQ
Q033
2SC4081
LPF
Q034
2SC4081
LPF
Q035
2SA1576
BAND REJECTION FILTER
Q043
2SC4081
Q042
DTA144WU
TAPE 1/2 GAIN SW
Q010
DTC144WU
Y COMB CHARA SW
D002
DAP202U
no mark : PEC/PB mode
( ) : REC
〈 〉 : PB
● Signal path
: REC Y Signal
: PB Y Signal
: REC CHROMA Signal
: PB CHROMA Signal
: REC Y/CHROMA Signal
: PB Y/CHROMA Signal

Note:

- ⊗ : Through hole.
- ▒ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.
- ▨ : Printed resistor.


Side B
Side A

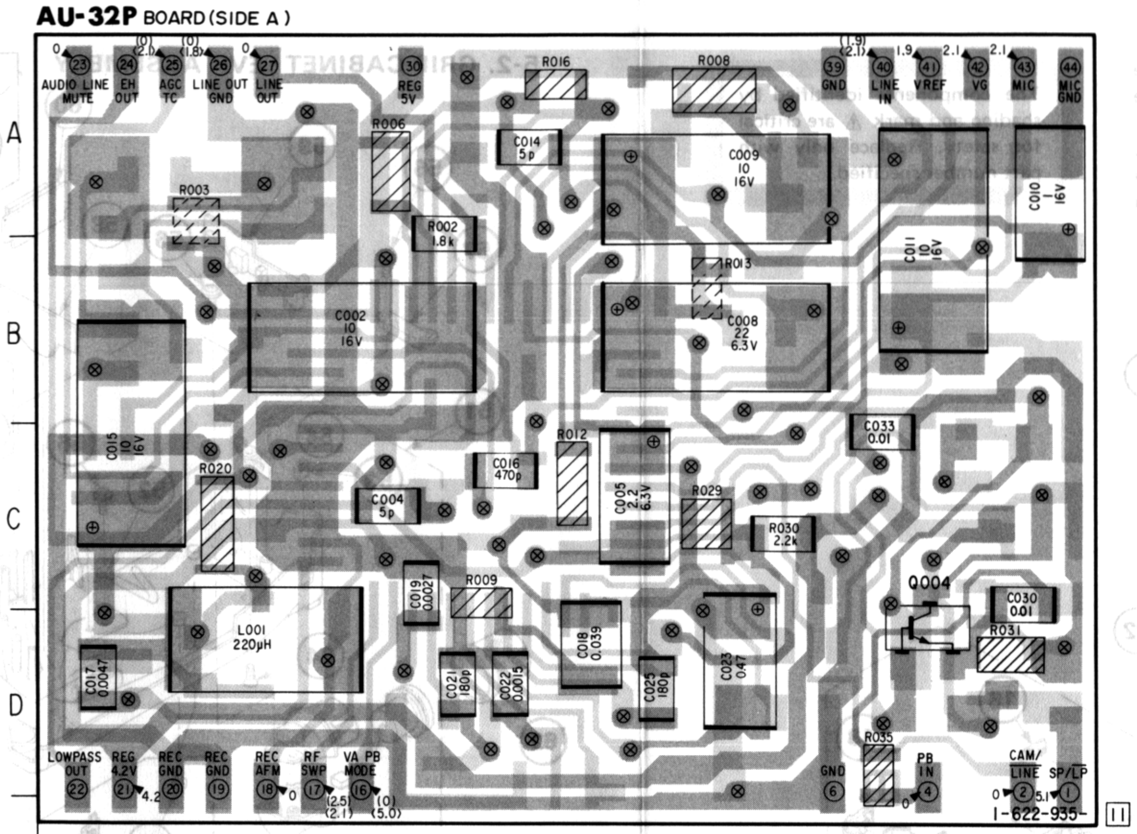
Note	
Soldering side (SIDE A)	: Parts on the soldering side being seen from the soldering are stated.
Component side (SIDE B)	: Parts on the component side being seen from the component are stated.

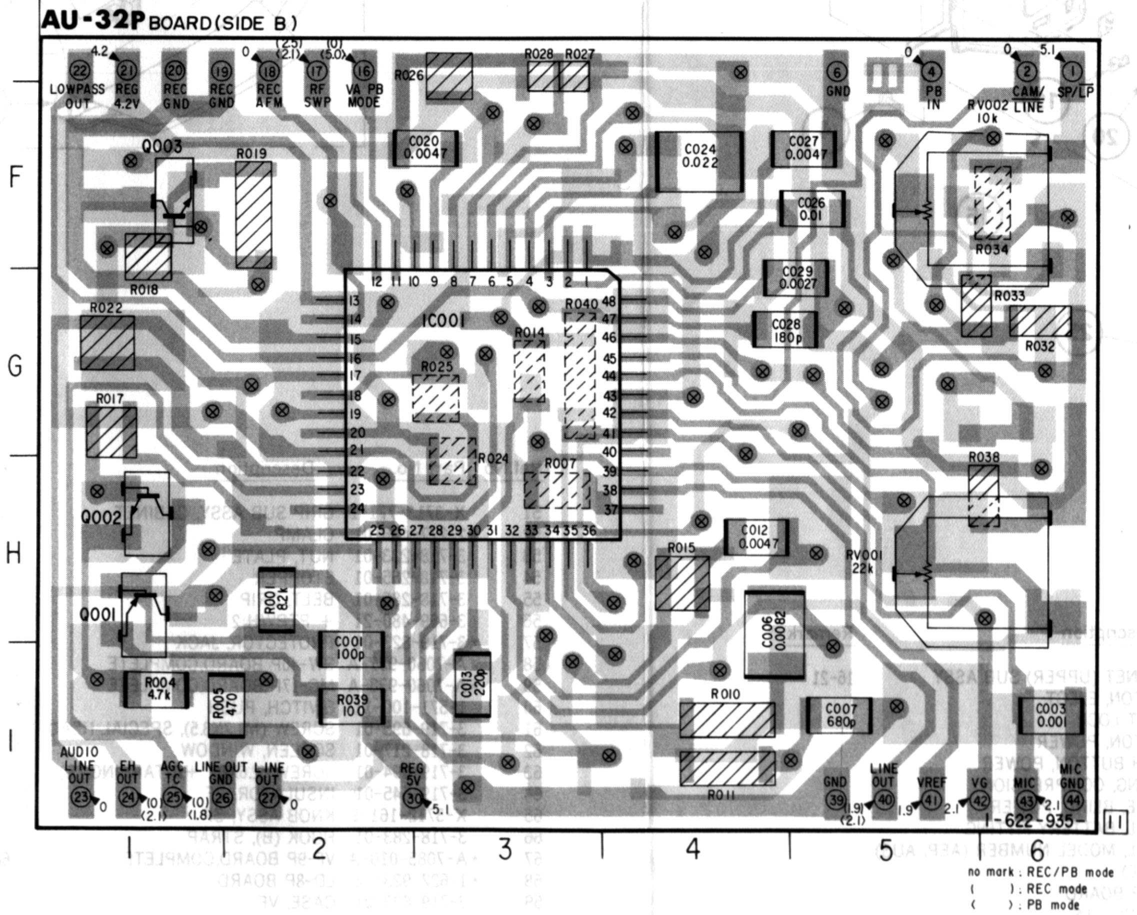

AU-32P
(Audio Process)

Note:

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/6W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics, and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : printed resistor.
- ☐ : panel designation.
- ▭ : fusible resistor.
- △ : internal component.
- ▭ : nonflammable resistor.
- ━ : B + bus.
- ⇨ : IN/OUT direction of B+, B− bus.
- ☐ : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
  (Remove the W331 on VA-36 board.
  Input point: Pin ① of W331 on VA-36 board.
  (75Ω terminated))
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

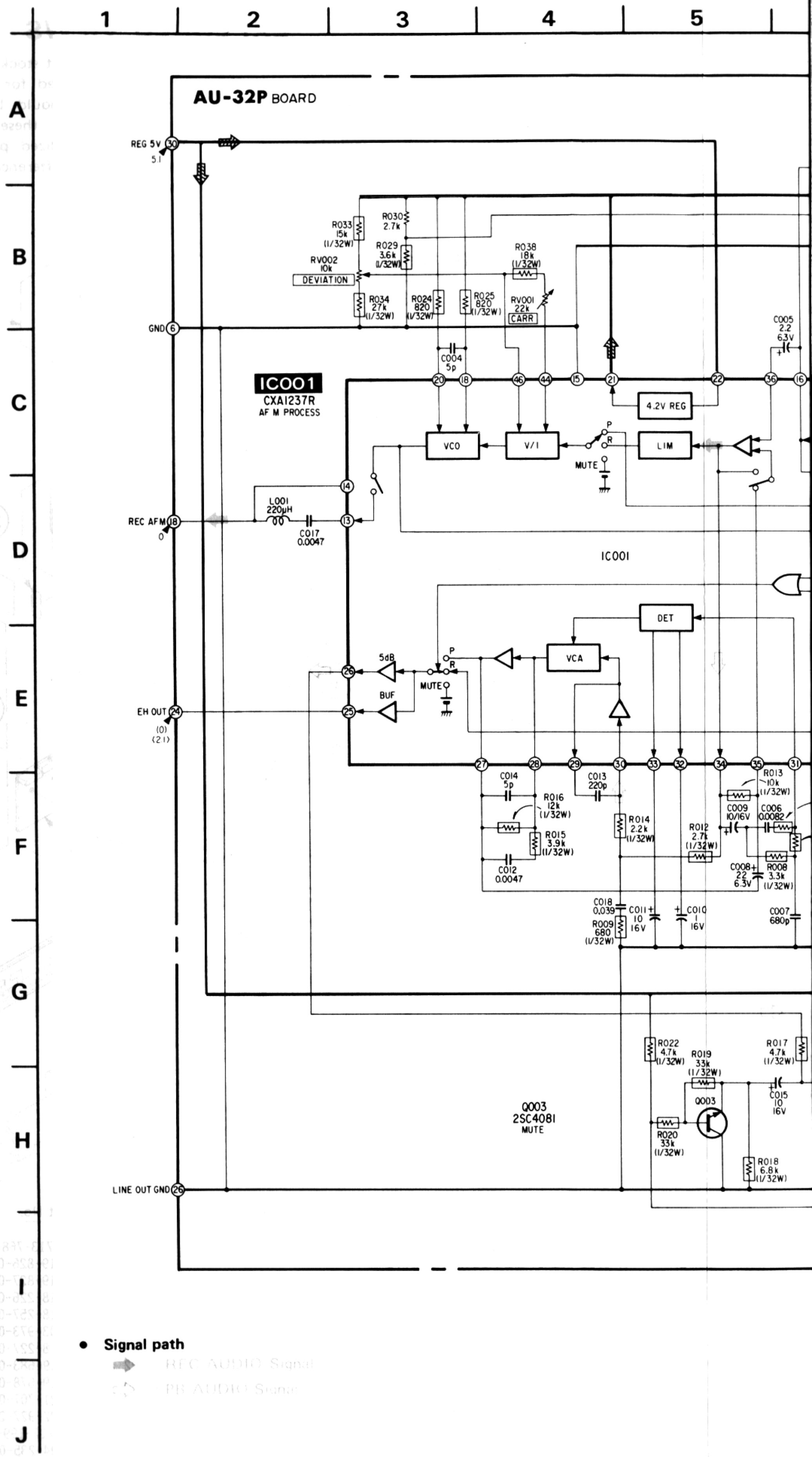
AU-32P(AUDIO PROCESS) PRINTED WIRING BOARD


AU-32P BOARD (SIDE A)
A
B
C
D
AUDIO MUTE
LINE IN
EH OUT
AGC TC
LINE OUT GND
LINE OUT
REG 5V
GND
LINE IN
VREF
VG
MIC
MIC GND
R016
R008
R006
C014 5p
C009 10 16V
C010 1 16V
R003
R002 1.8k
R013
C011 10 16V
C002 10 16V
C008 22 6.3V
C015 10 16V
R020
R012
C016 470p
C005 2.2 6.3V
R029
C033 0.01
C004 5p
R030 2.2k
Q004
C030 0.01
R031
R009
C019 0.0027
L001 220μH
C017 0.0047
C021 180p
C022 0.0015
C018 0.039
C025 180p
C023 0.47
R035
LOWPASS OUT
REG 4.2V
REC GND
REC GND
REC AFM
RF SWP
VA PB MODE
GND
PB IN
CAM/LINE
SP/LP
1-622-935-11


AU-32P BOARD (SIDE B)
E
F
G
H
I
LOWPASS OUT
REG 4.2V
REC GND
REC GND
REC AFM
RF SWP
VA PB MODE
R026
R028
R027
GND
PB IN
CAM/LINE
SP/LP
RV002 10k
Q003
R019
C020 0.0047
C024 0.022
C027 0.0047
C026 0.01
R034
R018
IC001
R040
C029 0.0027
R033
R022
R014
C028 180p
R032
R017
R025
R024
R007
R038
Q002
R015
C012 0.0047
RV001 22k
Q001
R001 82k
C001 100p
C006 0.0082
R004 4.7k
R005 470
C013 220p
R039 100
R010
C007 680p
C003 0.001
R011
AUDIO LINE OUT
EH OUT
AGC TC
LINE OUT GND
LINE OUT
REG 5V
GND
LINE OUT
VREF
VG
MIC
MIC GND
1-622-935-11
1
2
3
4
5
6

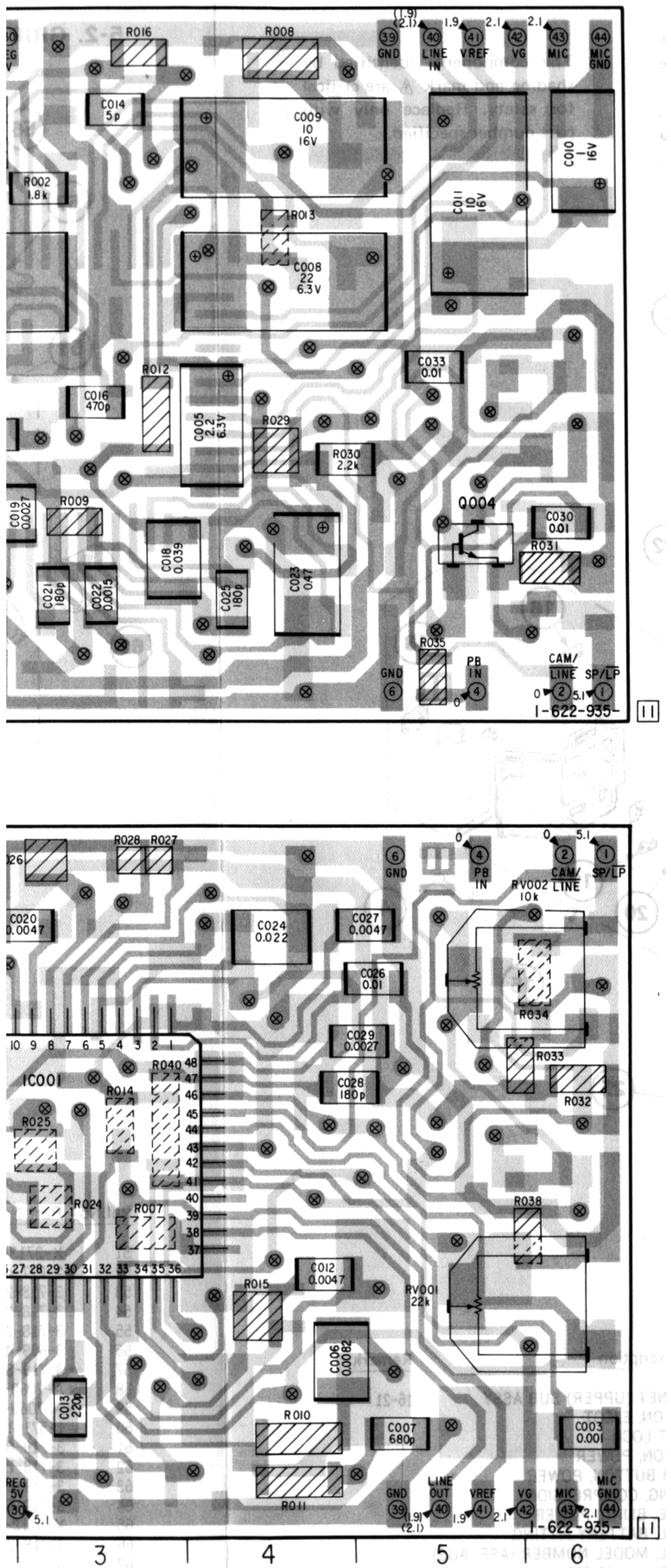
no mark : REC/PB mode
( ) : REC mode
( ) : PB mode

AU-32P(AUDIO PROCESS) SCHEMATIC DIAGRAM


1
2
3
4
5
A
B
C
D
E
F
G
H
I
J
AU-32P BOARD
REG 5V
GND
REC AFM
EH OUT
LINE OUT GND
IC001
CXA1237R
AF M PROCESS
R033 15k
RV002 10k DEVIATION
R030 2.7k
R029 3.6k
R038 18k
R034 27k
R024 820
R025 820
RV001 22k CARR
C004 5p
C005 2.2 6.3V
4.2V REG
VCO
V/I
MUTE
LIM
L001 220μH
C017 0.0047
DET
VCA
5dB
BUF
MUTE
C014 5p
R016 12k
C013 220p
R013 10k
R014 2.2k
R015 3.9k
R012 2.7k
C009 10/16V
C006 0.0082
C012 0.0047
C008 22 6.3V
R008 3.3k
C018 0.039
R009 680
C011 10 16V
C010 1 16V
C007 680p
R022 4.7k
R019 33k
R017 4.7k
Q003 2SC4081 MUTE
R020 33k
C015 10 16V
R018 6.8k

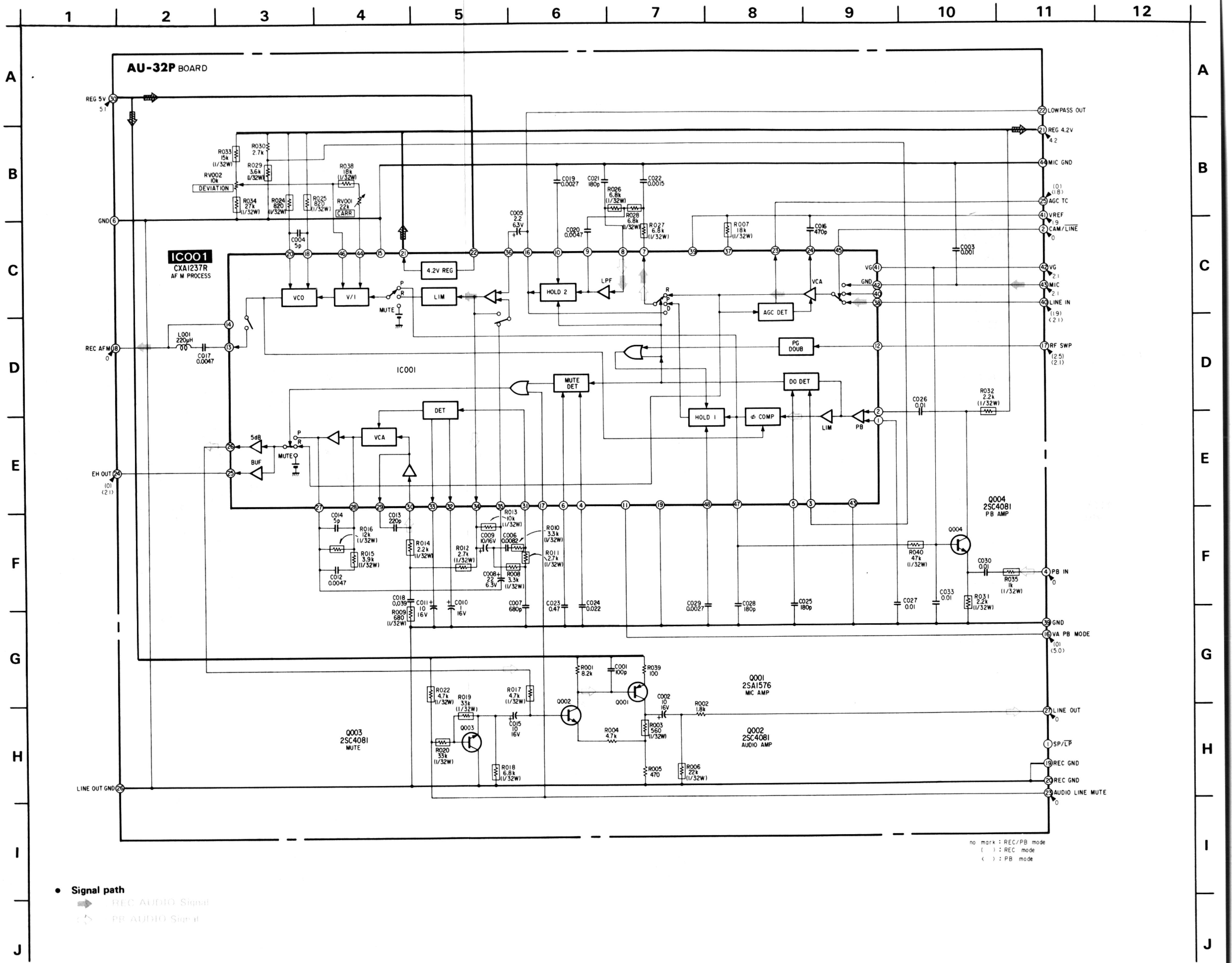
- **Signal path**
  ➡ REC AUDIO Signal
  ⇨ PB AUDIO Signal

ED WIRING BOARD


R016
R008
GND
LINE IN
VREF
VG
MIC
MIC GND
C014 5p
C009 10 16V
C010 1 16V
R002 1.8k
R013
C011 10 16V
C008 22 6.3V
R012
C033 0.01
C016 470p
C005 2.2 6.3V
R029
R030 2.2k
R009
Q004
C030 0.01
R031
C018 0.039
C021 180p
C022 0.0015
C025 180p
C023 0.47
R035
GND
PB IN
CAM/LINE
SP/LP
1-622-935-11
R028
R027
RV002 10k
C020 0.0047
C024 0.022
C027 0.0047
C026 0.01
R034
R033
R032
C029 0.0027
C028 180p
IC001
R040
R014
R025
R024
R007
R038
C012 0.0047
R015
RV001 22k
C006 0.0082
C013 220p
R010
R011
C007 680p
C003 0.001
REG 5V
GND
LINE OUT
3
4
5
6

no mark : REC/PB mode
( ) : REC mode
( ) : PB mode

AU-32P(AUDIO PROCESS) SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
AU-32P BOARD
REG 5V
GND
REC AFM
EH OUT
LINE OUT GND
IC001
CXA1237R
AF M PROCESS
R033 15k (1/32W)
R030 2.7k
R029 3.6k (1/32W)
RV002 10k DEVIATION
R034 27k (1/32W)
R024 820 (1/32W)
R025 820 (1/32W)
R038 18k (1/32W)
RV001 22k CARR
C004 5p
C019 0.0027
C021 180p
C022 0.0015
R026 6.8k (1/32W)
R028 6.8k (1/32W)
R027 6.8k (1/32W)
C005 2.2 6.3V
C020 0.0047
R007 18k (1/32W)
C016 470p
C003 0.001
4.2V REG
VCO
V/I
LIM
HOLD 2
LPF
AGC DET
VCA
MUTE
L001 220μH
C017 0.0047
PG DOUB
MUTE DET
DO DET
DET
VCA
HOLD 1
φ COMP
LIM
PB
5dB
BUF
C026 0.01
R032 2.2k (1/32W)
C014 5p
R016 12k (1/32W)
R015 3.9k (1/32W)
C012 0.0047
C013 220p
R014 2.2k (1/32W)
R012 2.7k (1/32W)
R013 10k (1/32W)
C009 10/16V
C006 0.0082
R010 3.3k (1/32W)
R011 2.7k (1/32W)
C008 22 6.3V
R008 3.3k (1/32W)
C018 0.039
C011 10 16V
C010 1 16V
R009 680 (1/32W)
C007 680p
C023 0.47
C024 0.022
C029 0.0027
C028 180p
C025 180p
C027 0.01
C033 0.01
R031 2.2k (1/32W)
R040 47k (1/32W)
Q004
Q004 2SC4081 PB AMP
C030 0.01
R035 1k (1/32W)
R001 8.2k
C001 100p
R039 100
Q001 2SA1576 MIC AMP
Q002 2SC4081 AUDIO AMP
Q003 2SC4081 MUTE
R022 4.7k (1/32W)
R019 33k (1/32W)
R017 4.7k (1/32W)
R020 33k (1/32W)
C015 10 16V
R018 6.8k (1/32W)
C002 10 16V
R002 1.8k
R004 4.7k
R003 560 (1/32W)
R005 470
R006 22k (1/32W)
LOWPASS OUT
REG 4.2V
MIC GND
AGC TC
VREF
CAM/LINE
VG
MIC
LINE IN
RF SWP
PB IN
GND
VA PB MODE
LINE OUT
SP/LP
REC GND
REC GND
AUDIO LINE MUTE

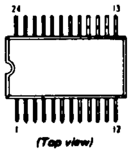
no mark : REC/PB mode
( ) : REC mode
( ) : PB mode

- Signal path

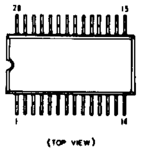
REC AUDIO Signal
PB AUDIO Signal

4-3. SEMICONDUCTORS

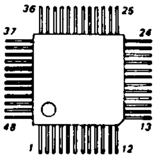
AN2510S
CX20114


24
13
1
12
(Top view)

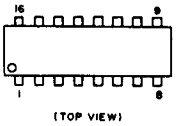
CXA1042M
CXD1030M
CX1042M


28
15
1
14
(TOP VIEW)

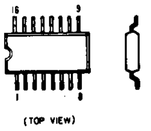
CXA1070Q
CXA1072Q


36
25
37
24
48
13
1
12

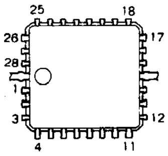
CXD1141M
µPD4538BG


16
9
1
8
(TOP VIEW)

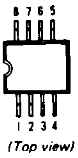
CX20115A
TA7733F


16
9
1
8
(TOP VIEW)

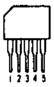
MC146805F2FPSC82533F


25
18
26
17
28
1
3
12
4
11

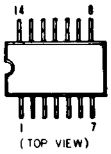
NJM4560M
TL062CPS
µPC358G2
µPC393G2


8 7 6 5
1 2 3 4
(Top view)

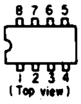
TA7060AP



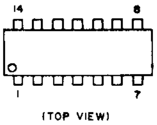
TC40H008F


14
8
1
7
(TOP VIEW)

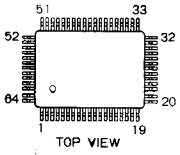
TL062ACPS
µPC4572G2


8 7 6 5
1 2 3 4
(Top view)

µPD4066BG


14
8
1
7
(TOP VIEW)

µPD7503G-714-12


51
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TOP VIEW

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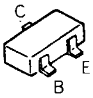

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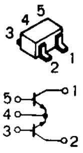
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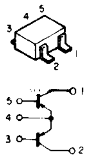
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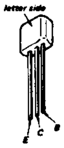
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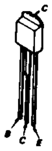

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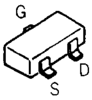

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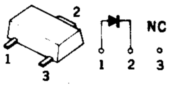

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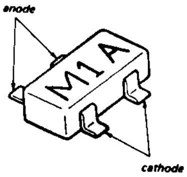
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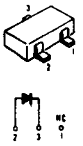
RD2.4M-B
RD5.6M-B2
RD9.1M-B1



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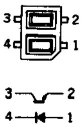

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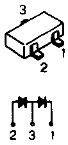

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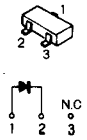

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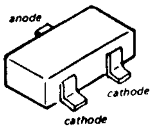
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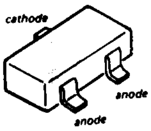
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anode

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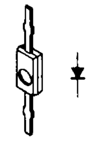

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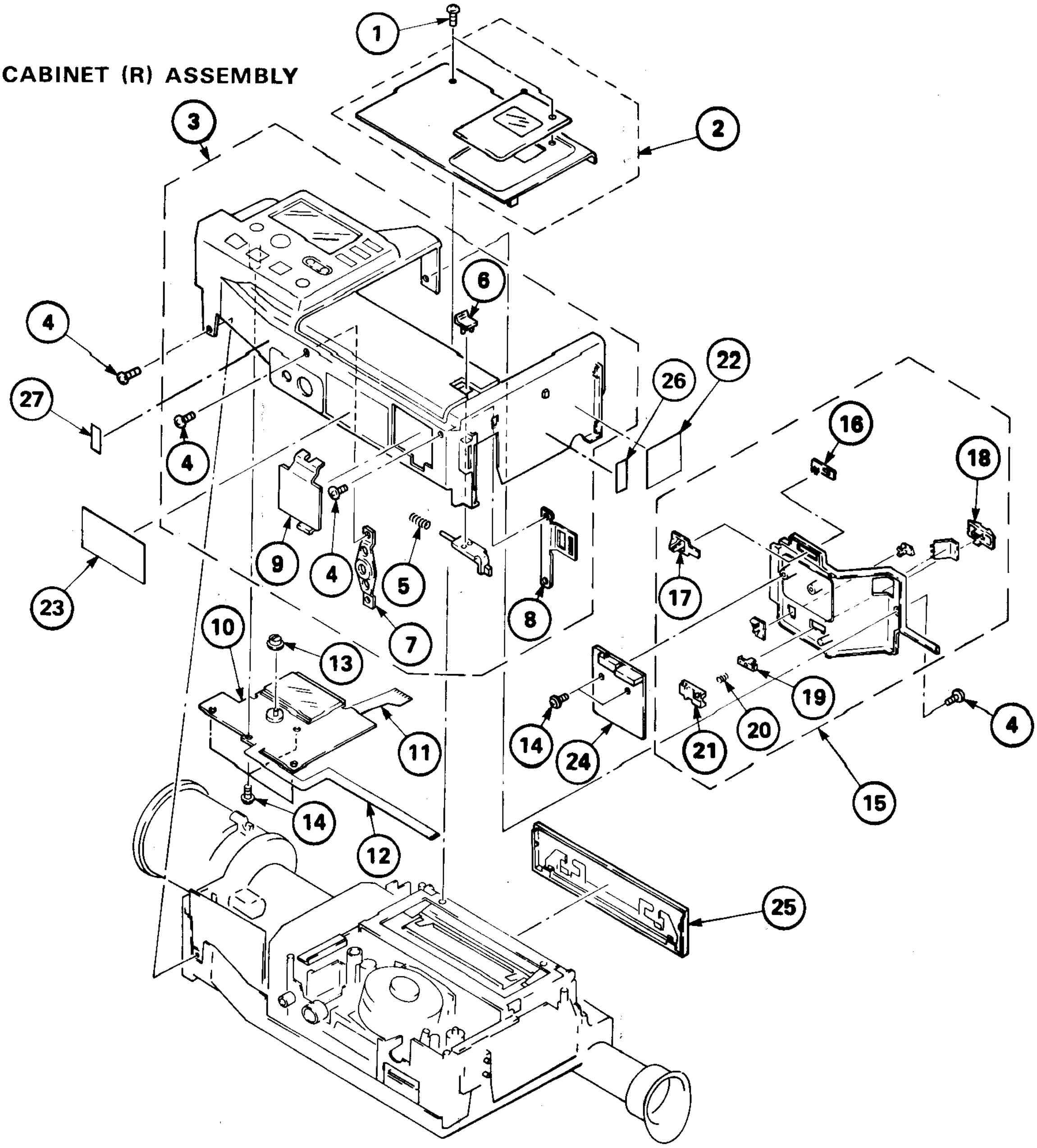
SECTION 5
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some differences from the original one.

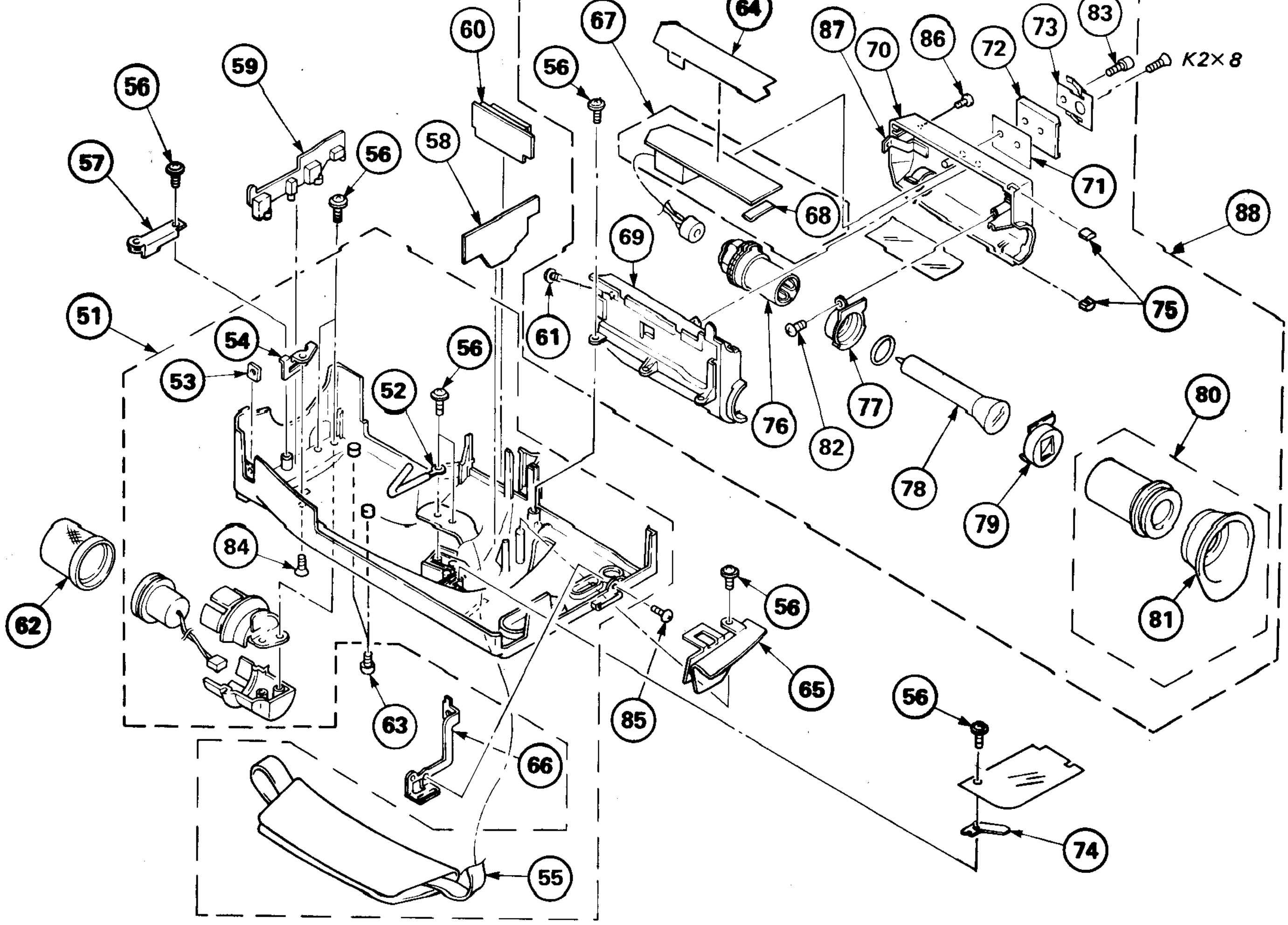
The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

5-1. CABINET (R) ASSEMBLY



Ref.No	Part No.	Description	Remark
1	3-713-791-01	SCREW (M1.7X5), TAPPING, P2	
2	X-3713-770-1	LID ASSY, CASSETTE	
3	X-3713-769-1	CABINET (R) SUB ASSY	4-9
4	3-719-381-11	SCREW (M2X5)	
5	3-426-508-00	SPRING, COMPRESSION	
6	3-716-458-01	KNOB, BATTERY RELEASE	
7	3-718-231-01	SCREW, TRIPOD	
8	3-718-254-01	HOOK (A), STRAP	
9	*3-718-273-01	LID, BATTERY CASE	
10	*A-7060-930-A	FD-4P BOARD,COMPLETE	
11	1-622-947-11	FP-63 FLEXIBLE BOARD	
12	1-622-941-11	FP-75 FLEXIBLE BOARD	
13	3-719-825-01	KNOB, IRIS	
14	3-669-480-21	+ PTPWH 2	
15	X-3713-768-1	CABINET (UPPER) SUB ASSY	16-21
16	3-719-826-01	BUTTON, EJECT	
17	3-719-827-01	EJECT LOCK	
18	3-718-226-01	BUTTON, POWER	
19	3-718-257-01	PUSH BUTTON, POWER	
20	3-303-973-00	SPRING, COMPRESSION	
21	3-718-227-01	PLATE, BLIND, POWER	
22	*3-719-683-01	LABEL, BATTERY FITTING	
23	*3-719-678-01	LABEL, MODEL NUMBER (AEP, AUS)	
	*3-721-707-01	(UK, E)	
24	*1-622-927-21	FK-4P BOARD	
25	X-3712-199-1	LID ASSY, LS	
26	*3-704-235-01	LABEL, CAUTION(UK)	
27	*2-359-729-02	LABEL, BEAB(UK)	

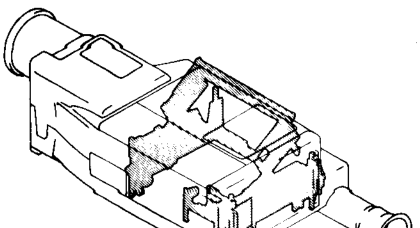
5-2. GRIP CABINET ,EVF ASSEMBLY

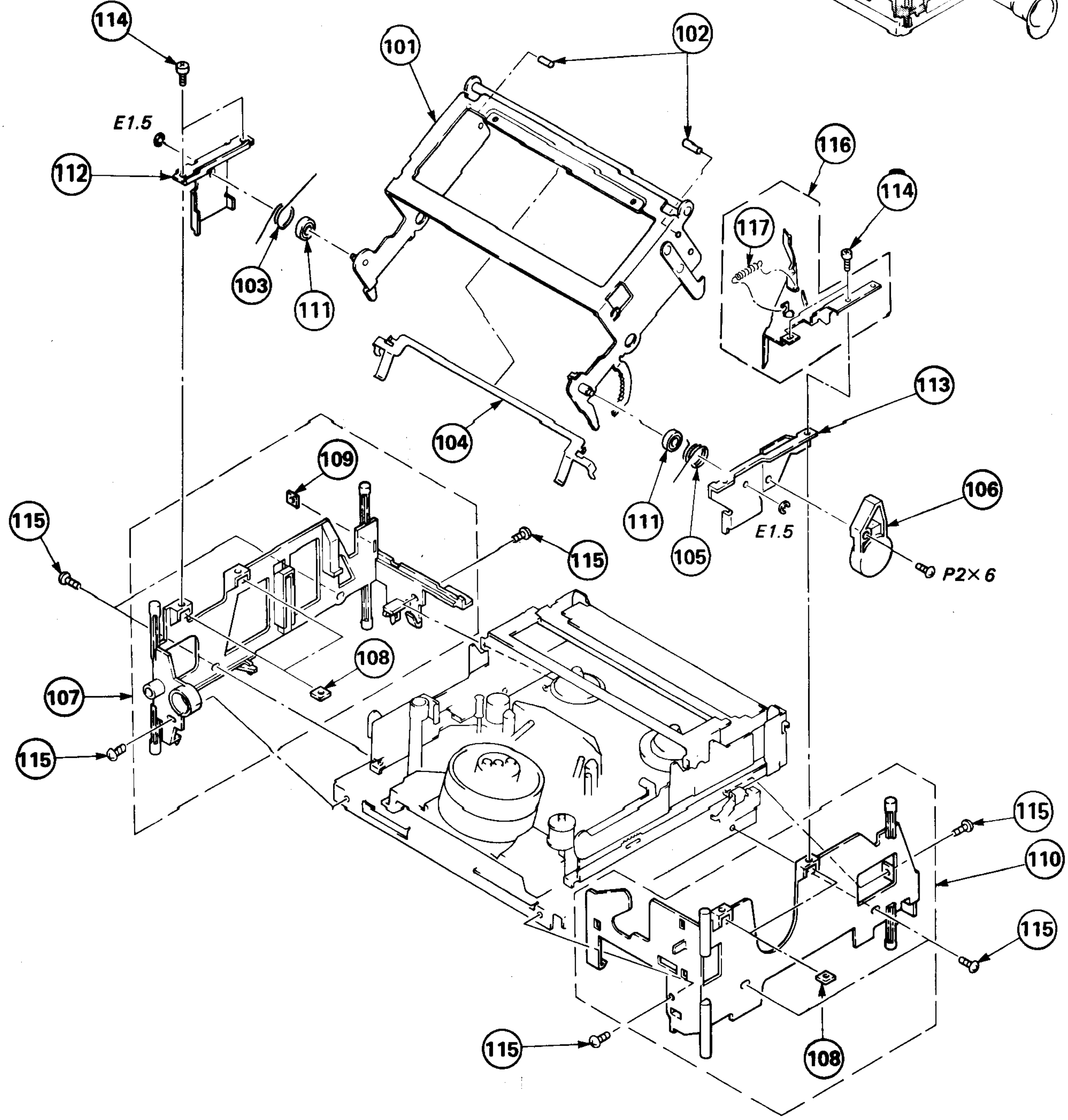


The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark
51	X-3713-771-1	GRIP SUB ASSY, CABINET	52-56,84
52	*2-277-426-01	CLAMP	
53	3-718-233-01	NUT, PLATE	
54	3-718-265-01	STOPPER	
55	3-718-286-01	BELT, GRIP	
56	3-669-480-21	+ PTPWH 2	
57	*3-719-823-01	PROTECTOR, JACK	
58	*A-7060-937-A	SW-40P BOARD,COMPLETE	
59	*A-7060-938-A	MC-17P BOARD,COMPLETE	
60	1-571-100-11	SWITCH, PUSH	
61	3-719-695-01	SCREW (M1.7X3.5), SPECIAL HEAD	
62	3-718-217-01	SCREEN, WINDOW	
63	3-719-694-01	SCREW (2.6X8), +B TAPPING (B)	
64	3-719-645-01	INSULATOR, VF	
65	X-3712-161-1	KNOB ASSY, SP	
66	3-718-283-01	HOOK (B), STRAP	
67	*A-7085-010-A	VF-9P BOARD,COMPLETE	68
68	*1-622-923-22	LD-8P BOARD	
69	3-719-803-01	CASE, VF	
70	3-719-640-01	CABINET, VF	
71	*3-719-672-01	INSULATOR, ACC	
72	3-688-985-01	SHOE, ACCESSORY	
73	3-688-940-01	SPRING, LEAF	
74	*3-719-849-01	PROTECTOR, SW	
75	3-719-629-01	CLIP	
76	⚠1-451-310-11	DEFLECTION YOKE (B/W)(L901)	
77	3-718-267-01	HOLDER (B), CRT	
78	⚠1-546-065-21	CATHODE-RAY TUBE, B/W(V901)	
79	X-3712-159-1	HOLDER ASSY, CRT	
80	X-3712-145-1	CAP ASSY,EYE	81
81	3-713-548-01	CUP, EYE	
82	3-719-843-01	SCREW (B2.6X8) (G), TAPPING	
83	3-678-103-31	SCREW, EVF STOPPER	
84	3-719-831-01	SCREW (M2X6)	
85	3-719-381-11	SCREW (M2X5)	
86	3-713-790-01	SCREW (M2X6), TAPPING, P3	
87	3-719-693-01	SUPPORT, VF	
88	A-7019-068-A	EVF ASSY	56,61,64,67, 69,70-73,75-83,86,87

5-3. CASSETTE COMPARTMENT ASSEMBLY

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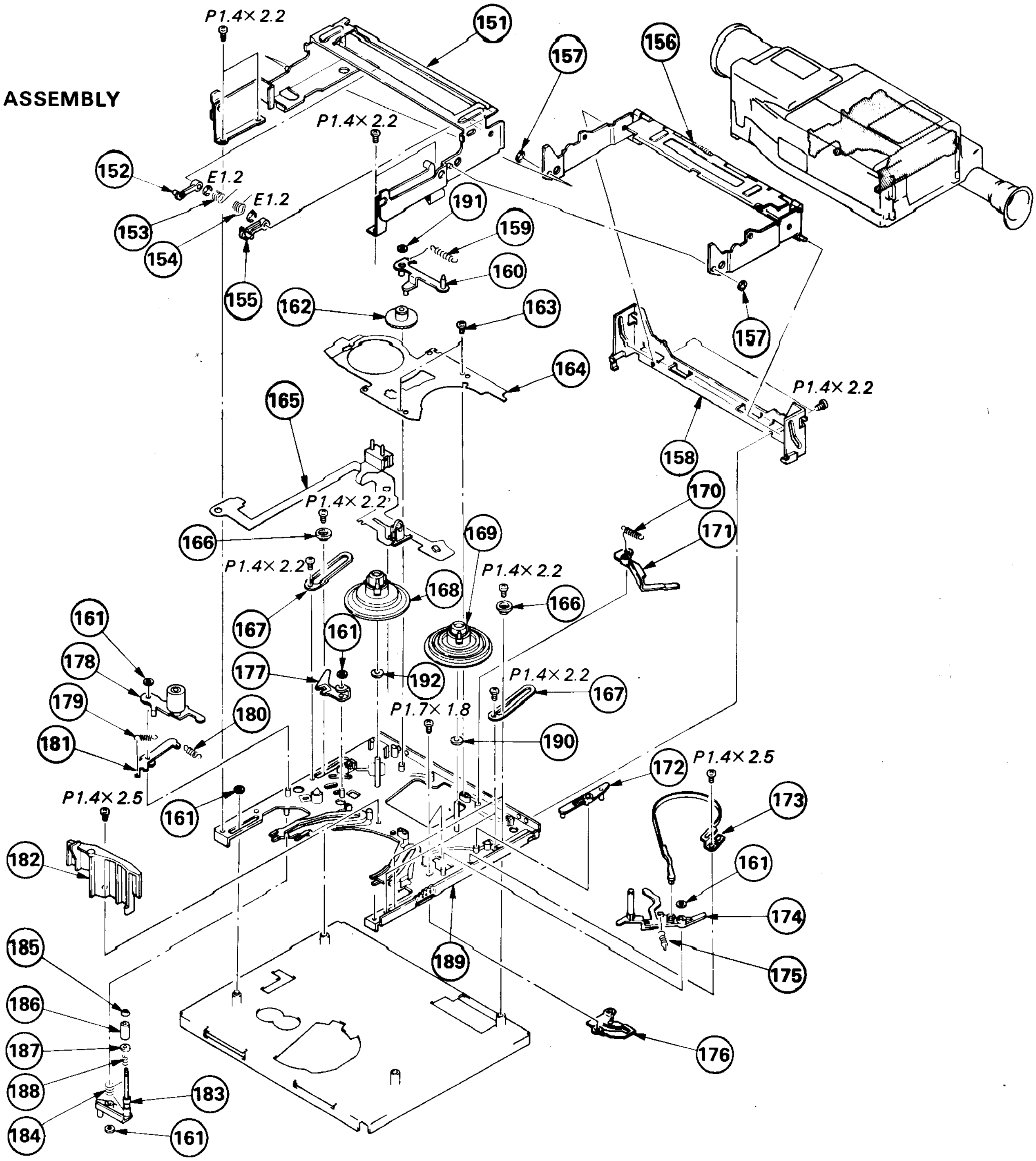
No.	Part No.	Description	Remark
101	X-3712-034-1	ARM ASSY (2), CASSETTE	102, 104
102	3-695-602-01	SHAFT, RIVETING, CASSETTE ARM	
103	3-695-582-01	SPRING, TORSION	
104	3-695-580-01	RETAINER, CASSETTE COMPARTMENT	
105	3-695-581-01	SPRING, TORSION	
106	3-719-604-01	DAMPER, OIL	
107	X-3712-143-1	FRAME (FRONT) ASSY	108, 109
108	3-716-418-01	NUT, FRAME PLATE	

No.	Part No.	Description	Remark
109	3-718-233-01	NUT, PLATE	
110	X-3712-144-1	FRAME (REAR) ASSY	108
111	3-695-512-02	COLLAR, CASSETTE ARM	
112	*3-719-606-01	PLATE (T2) (M), SIDE	
113	*3-719-607-01	PLATE (S2) (M), SIDE	
114	3-719-697-01	SCREW (M1.7X5), SPECIAL HEAD	
115	3-719-695-01	SCREW (M1.7X3.5), SPECIAL HEAD	
116	X-3713-916-1	GUARD ASSY, TAPE	117
117	3-695-718-01	SPRING, TENSION	

5-4. LS ASSEMBLY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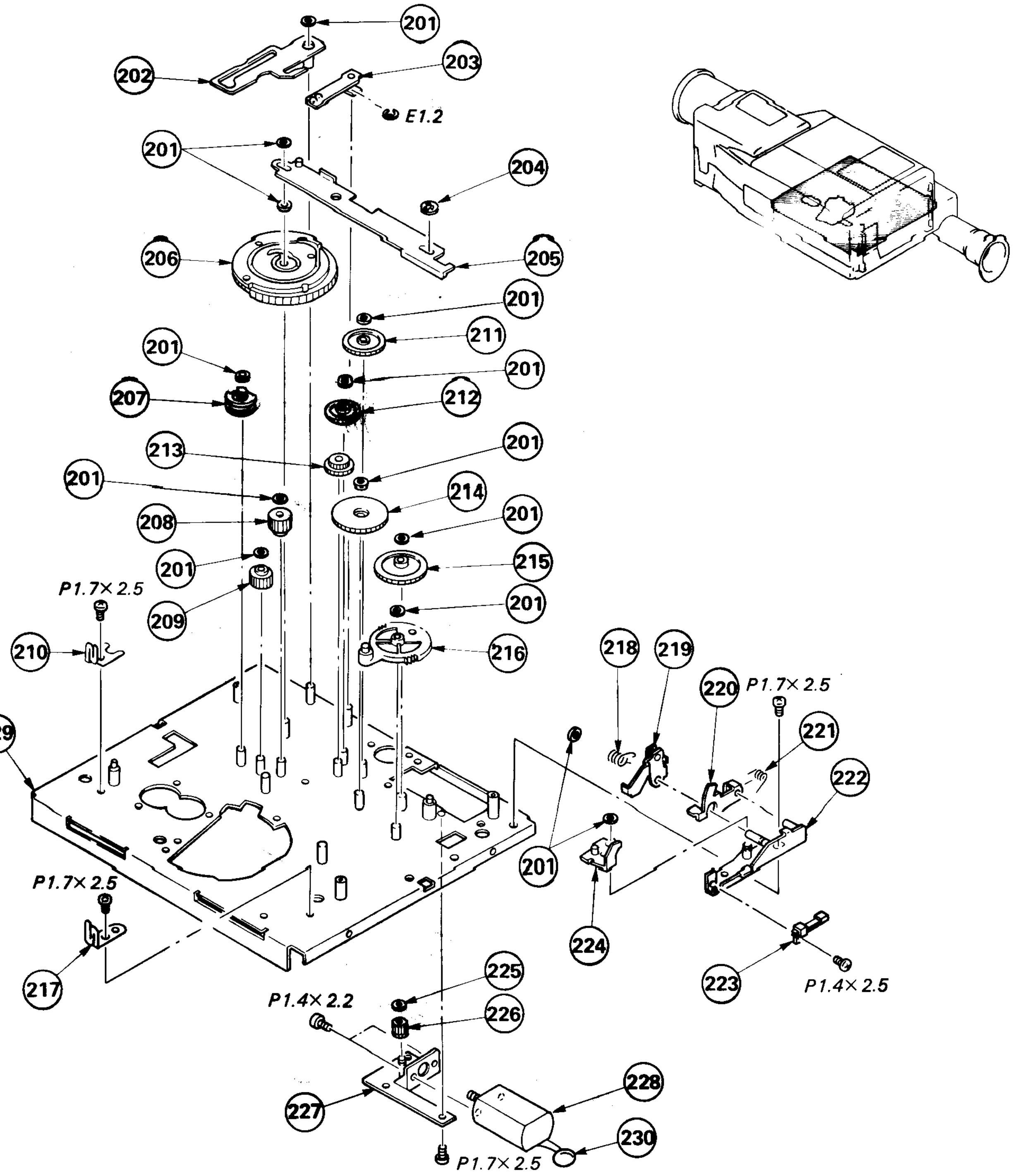
No.	Part No.	Description	Remark
151	X-3695-447-4	COMPARTMENT ASSY, CASSETTE, LS	
152	3-695-595-01	RETAINER (T), CASSETTE	
153	3-695-605-01	SPRING, TORSION	
154	3-695-604-01	SPRING, TORSION	
155	3-695-594-01	RETAINER (S), CASSETTE	
156	X-3695-448-3	ARM ASSY, BLIND	
157	3-669-465-00	WASHER (1.5), STOPPER	
158	3-695-646-01	ARM, LS	
159	3-695-718-01	SPRING, TENSION	
160	X-3712-037-1	LEVER (A) ASSY (2)	
161	3-315-384-31	WASHER, STOPPER	
162	X-3712-025-1	GEAR ASSY, TS	
163	3-699-402-01	SCREW (M1.3X5.5), TAPPING	
164	3-712-165-01	PLATE (2), STOPPER	
165	A-7060-693-A	FP-53 BOARD, COMPLETE	
166	3-695-698-01	GUIDE, LS	
167	3-695-697-01	SPRING, LEAF, LS	
168	X-3695-436-1	TABLE ASSY, REEL, TAKE-UP	
169	X-3712-038-1	TABLE ASSY (2), REEL, SUPPLY	
170	3-542-475-00	SPRING, TENSION	
171	3-712-151-01	BRAKE (2), SOFT	
172	3-695-735-01	ARM, TG1 RELEASE	
173	X-3695-432-1	BAND ASSY, TG1	
174	X-3712-019-1	ARM ASSY (2), TG1	
175	3-695-591-01	SPRING, TENSION	
176	3-695-733-01	PLATE, CAM, LS	
177	X-3712-022-1	ARM (B) ASSY (2), PINCH	
178	X-3712-032-2	ARM (C) ASSY (2), PINCH	
179	3-695-622-01	SPRING, TENSION	
180	3-695-719-01	SPRING, TENSION	
181	X-3695-415-1	PINCH LEVER ASSY	
182	3-695-624-01	BASE, PROTECT	
183	X-3712-027-1	ARM ASSY (2), TG7	
184	3-695-541-01	SPRING	
185	3-712-158-01	FLANGE, UPPER, TG7	
186	3-712-160-01	SLEEVE (2), TG7	
187	3-712-159-01	FLANGE, LOWER, TG7	
188	3-712-157-01	SPRING, COMPRESSION	
189	X-3712-035-1	CHASSIS ASSY (2), LS	
190	3-701-444-01	WASHER, 6	
191	3-321-393-01	WASHER, STOPPER	
192	3-701-441-01	WASHER	

5-5. CHASSIS ASSEMBLY (1)



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P1.4×2.2
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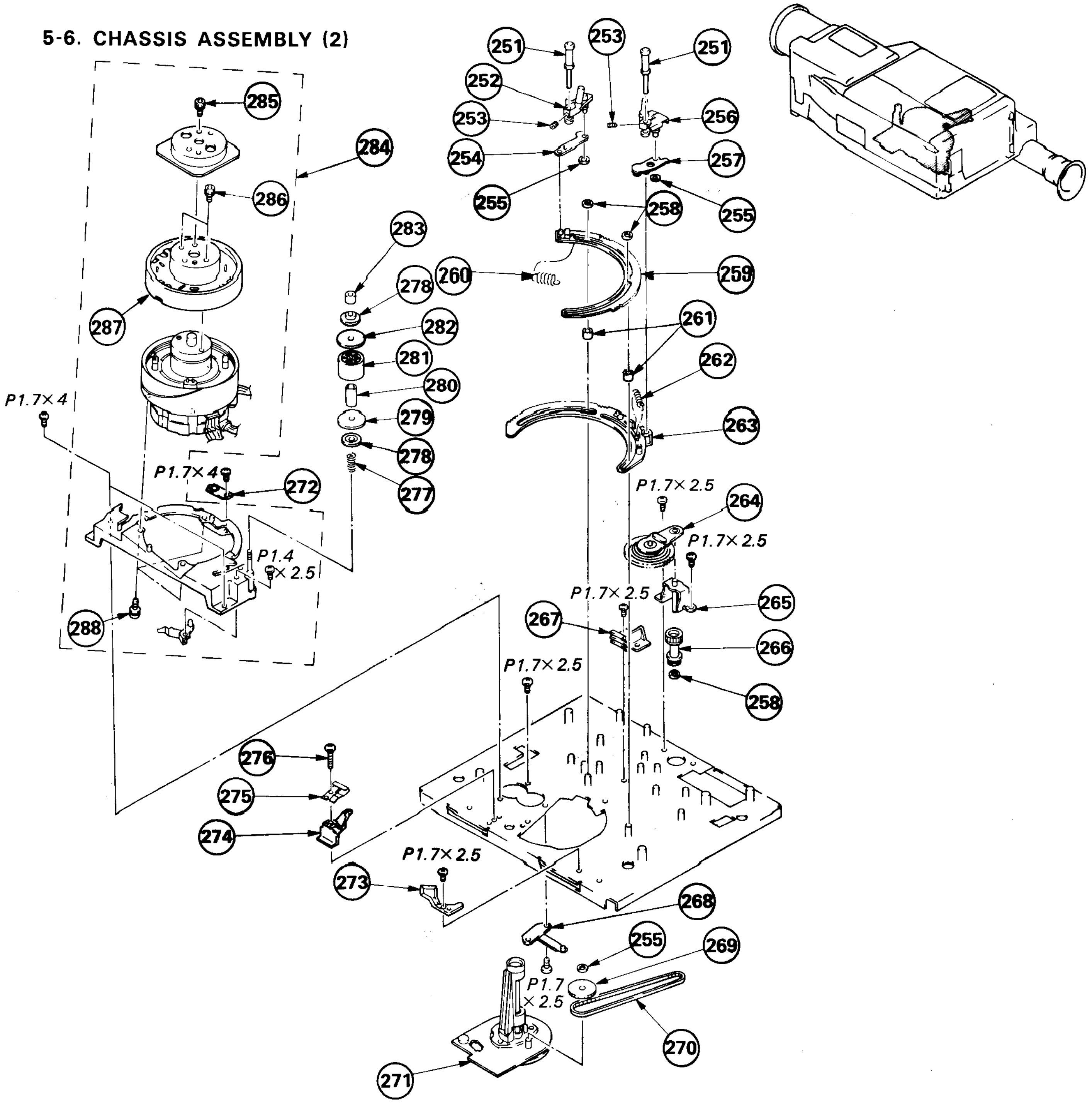
P1.7×2.5

No.	Part No.	Description	Remark
201	3-315-384-31	WASHER, STOPPER	
202	X-3712-023-1	ARM (A) ASSY (2), PINCH	
203	3-695-589-01	LEVER (B), REEL LOCK	
204	3-669-465-00	WASHER (1.5), STOPPER	
205	X-3695-439-1	SLIDER ASSY, M	
206	X-3712-031-1	CAM ASSY (2)	
207	3-712-156-01	GEAR (M) (2), THREADING	
208	3-695-537-01	GEAR (T), THREADING	
209	3-695-536-01	GEAR (S), THREADING	
210	*3-695-706-01	SPRING (T)	
211	3-695-559-01	GEAR (B), THREADING	
212	3-695-724-01	GEAR (D), THREADING	
213	3-712-162-02	GEAR (C) (2), THREADING	
214	3-695-714-01	GEAR (A), LS	
215	3-695-563-04	GEAR (B), LS	
216	X-3695-417-1	GEAR (C) ASSY, LS	
217	*3-695-705-01	SPRING (S)	
218	3-713-937-01	SPRING (A) (2)	
219	X-3695-418-1	ARM ASSY, LOCK	
220	3-695-574-01	ARM, RETURN PREVENTION	
221	3-695-579-01	SPRING (B), TORSION	
222	X-3712-018-1	BASE ASSY (2), LOCK	
223	1-553-226-00	SWITCH, LEAF (S902)	
224	X-3695-438-1	ARM ASSY, EJECT	
225	3-321-393-01	WASHER, STOPPER	
226	3-712-150-01	WHEEL, WORM	
227	X-3712-017-1	HOLDER ASSY, MOTOR	
228	1-541-508-11	MOTOR, DC (LA14-323F) (LOADING) (M903)	
229	X-3712-036-1	CHASSIS ASSY (2), MECHANICAL	
230	1-161-051-00	CAP, CERAMIC 0.01MF X	

5-6. CHASSIS ASSEMBLY (2)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P1.7
×2.5
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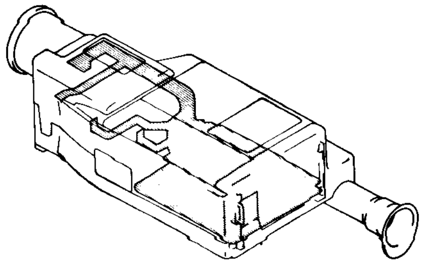
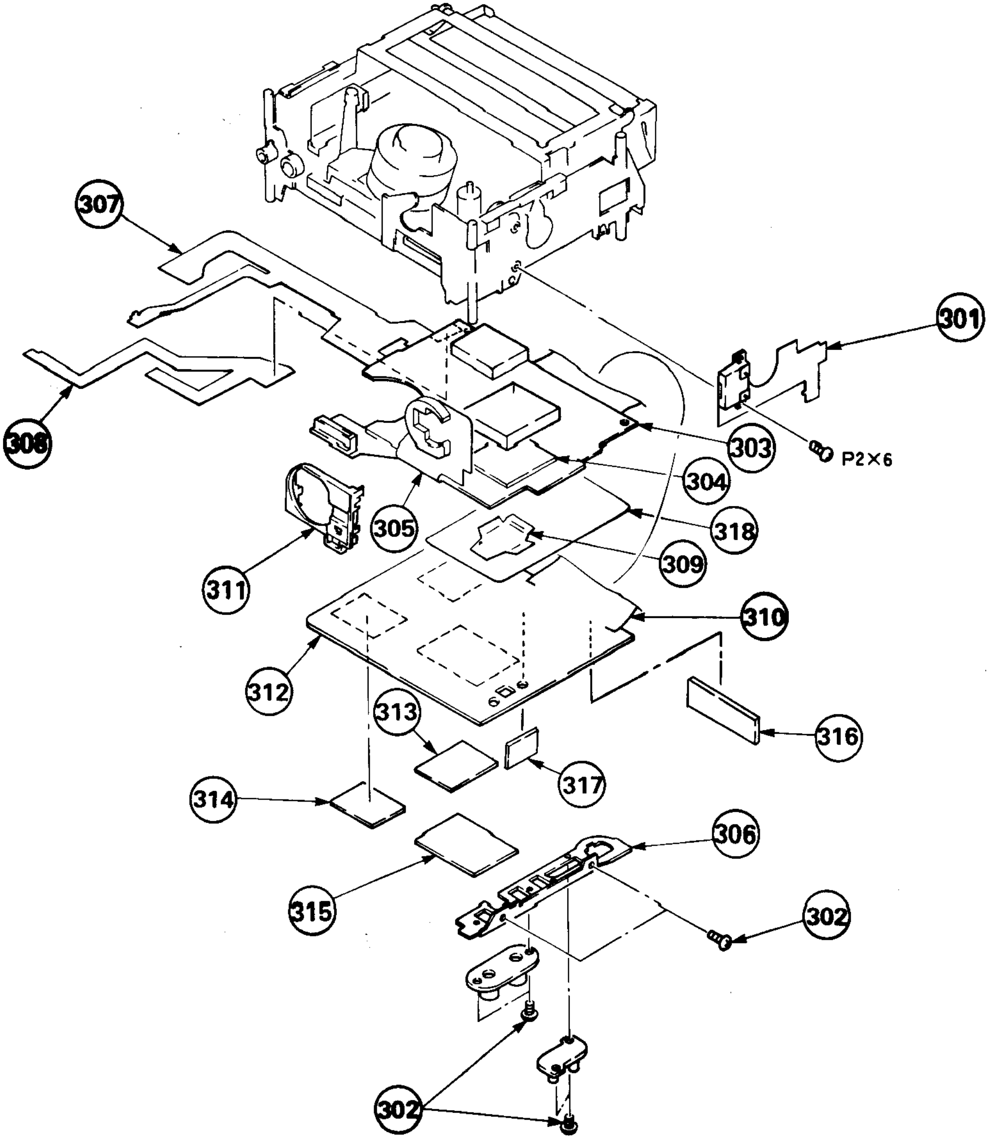
No.	Part No.	Description	Remark
251	X-3712-029-1	ROLLER ASSY (2), GUIDE	
252	X-3712-030-1	BASE ASSY (2), TG5	
253	3-695-770-01	SCREW, GR LOCK	
254	3-695-545-01	JOINT, T	
255	3-321-393-01	WASHER, STOPPER	
256	X-3712-028-1	BASE ASSY (2), TG4	
257	X-3695-429-1	JOINT ASSY, S	
258	3-315-384-31	WASHER, STOPPER	
259	X-3695-414-1	SLIDER (T) ASSY, THREADING	
260	3-695-773-01	SPRING, TENSION	
261	3-695-544-01	ROLLER, GUIDE	
262	3-695-772-01	SPRING, TENSION	
263	X-3695-428-1	SLIDER (S) ASSY, THREADING	
264	X-3712-024-1	ARM ASSY (2), GEAR	
265	X-3712-020-1	BASE ASSY (2), MIDWAY PULLEY	
266	X-3712-021-1	PULLEY ASSY (2), MIDWAY	
267	3-712-163-01	SUPPORT (2), SLIDER	
268	1-535-574-11	TERMINAL, SHAFT GROUND	
269	X-3695-413-1	GEAR ASSY, CHANGE	
270	3-695-637-01	BELT, RELAY	
271	8-835-223-01	MOTOR, DC BHF-3301B (CAPSTAN) (M902)	
272	1-807-238-11	SENSOR, DEW CONDENSATION	
273	3-695-627-01	STOPPER, SLIDER, S	
274	3-695-628-01	STOPPER, SLIDER, T	
275	3-695-677-01	SPRING (T), LEAF	
276	3-695-519-01	SCREW, FITTING, LEAF SPRING(T)	
277	3-695-532-01	SPRING, COMPRESSION	
278	3-695-727-01	RETAINER, FLANGE, UPPER	
279	3-695-794-01	FLANGE, LOWER, TG2	
280	3-695-530-01	SLEEVE, TG2	
281	3-712-164-01	ROLLER (2), TG2	
282	3-695-528-01	FLANGE, TG2	
283	3-695-529-01	NUT, TG2	
284	A-7048-124-A	DRUM ASSY (DGU-27A-R)	285-288
285	3-686-422-01	WASHER (2X2.7), BOLT, HOLE	
286	3-686-403-01	SCREW (2X5), BOLT WASHER	
287	A-7049-143-A	DRUM ASSY, UPPER (DGR-27-R)	
288	3-686-444-02	SCREW +P 2X5.5	

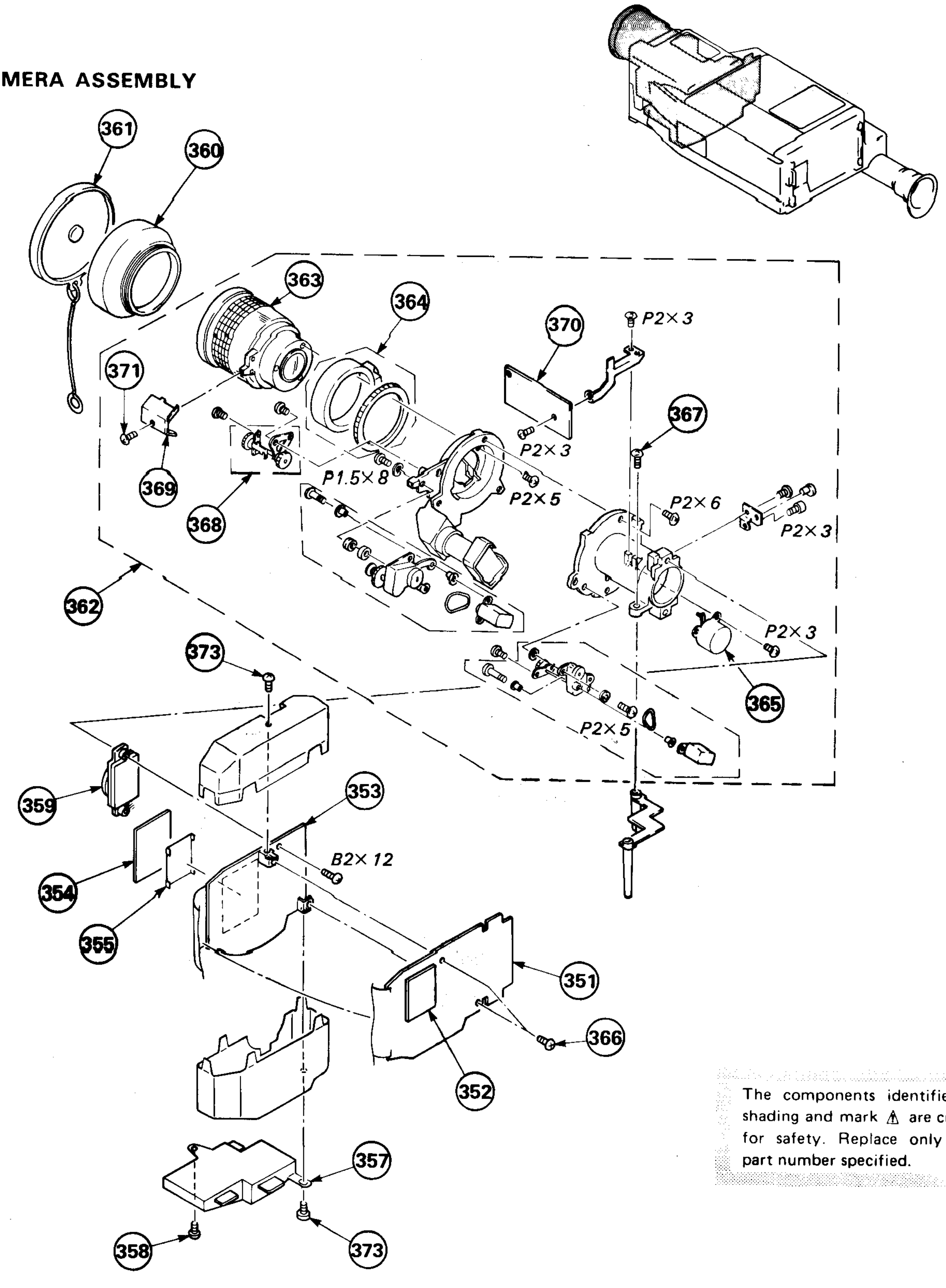
5-7. MAIN BOARD ASSEMBLY





Ref.No	Part No.	Description	Remark
301	1-622-938-23	FP-70P FLEXIBILE BOARD	
302	3-719-695-01	SCREW (M1.7X3.5), SPECIAL HEAD	
303	*A-7060-920-A	SS-81 BOARD,COMPLETE	304,305
304	A-7068-081-A	RP-47P BOARD,COMPLETE(HIC)	
305	1-622-943-11	FP-57 FLEXIBLE BOARD	
306	*X-3712-198-1	HOLDER ASSY, VO	
307	1-622-945-11	FP-59 FLEXIBLE BOARD	
308	1-622-939-11	FP-71 FLEXIBLE BOARD	
309	1-622-940-11	FP-72 FLEXIBLE BOARD	
310	1-622-946-11	FP-60 FLEXIBLE BOARD	
311	3-718-274-11	COVER	
312	*A-7060-919-A	VA-36 BOARD,COMPLETE	313-315
313	A-7068-091-A	AU-32P BOARD,COMPLETE(HIC)	
314	A-7068-092-A	CC-10 BOARD,COMPLETE(HIC)	
315	A-7068-093-A	YP-8 BOARD,COMPLETE(HIC)	
316	*A-7060-922-A	AT-6 BOARD,COMPLETE	
317	*A-7060-923-A	NR-1 BOARD,COMPLETE	

5-8. CAMERA ASSEMBLY


361
360
363
364
370
P2× 3
371
367
P2× 3
P1.5× 8
P2× 5
369
P2× 6
P2× 3
368
362
P2× 3
373
365
P2× 5
359
353
B2× 12
354
355
351
366
352
357
358
373

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark
351	*A-7060-926-A	VC-24P BOARD,COMPLETE	352
352	A-7068-094-A	CP-19P BOARD,COMPLETE(HIC)	
353	*A-7060-925-A	VC-23P BOARD,COMPLETE	354,356
354	A-7068-082-A	DT-62P BOARD,COMPLETE(HIC)	
355	*X-3712-160-1	PLATE ASSY, SHIELD, VC	
356	1-622-942-11	FP-54 FLEXIBLE BOARD	
357	⚠1-464-815-11	CONVERTER UNIT, DC-DC	
358	3-719-601-01	SCREW (B2X5), TAPPING	
359	8-750-010-65	IU024AK-10A CCD IMAGER	
360	3-718-235-01	HOOD, LENS	
361	3-719-348-01	CAP, HOOD	
362	1-547-242-11	LENS, ZOOM (VCL-1206YH)	363-365,367-371
363	3-707-368-01	RUBBER, FOCUS	
364	3-707-371-01	RING ASSY, ZOOM	
365	3-707-369-01	METER ASSY, EE	
366	3-719-696-02	SCREW(M2×3),SPECIAL HEAD	
367	3-719-843-01	SCREW (B2.6X8) (G), TAPPING	
368	3-707-370-01	GEAR ASSY, AF DRIVE	
369	3-719-687-01	COVER, GEAR	
370	*A-7060-961-A	AF-32 BOARD,COMPLETE	
371	3-719-845-01	SCREW(B2×4),TAPPING	

5-9. HARDWARE LIST

7-627-852-27	+P 1.7X3

SCREW

7-621-255-45	SCREW +P
7-621-772-60	SCREW +B
7-627-850-17	SCREW,PRECISION +P 1.4X2.5
7-627-552-07	SCREW,PRECISION +P 1.7X2.5
7-627-852-18	SCREW,PRECISION +P 1.7X4 TYPE3
7-627-852-38	SCREW,PRECISION +P1.7X1.8TYPE3
7-685-205-19	SCREW +KTP 2X8 TYPE2 NON-SLIT

STOP RING

7-624-101-01	STOP RING 1.2 (E TYPE)
7-624-102-04	STOP RING 1.5, TYPE -E

SECTION 6
ELECTRICAL PARTS LIST

FP-57 **NR-1** **AT-6**

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X, mean standardized parts, so they may have some difference from the original one.
- SEMIDONDUCTORS
  In each case, U: μ, for example:
  UA. . .: μA. . ., UPA. . .: μPA. . ., UPB. . .: μPB. . ., UPC. . .: μPC. . ., UPD. . .: μPD. . .
- CAPACITORS
  MF: μF, PF: μμF
- COILS
  MMH: mH, UH: μH

Ref.No	Part No.	Description				Remark
	*1-622-943-11	FP-57 FLEXIBLE BOARD				
		*************				
	*1-550-104-32	HOLDER, BATTERY				
		CONNECTOR				
CN001	1-562-879-11	CONNECTOR, CARD EDGE 19P				
CN002	1-562-880-11	CONNECTOR, CARD EDGE 15P				
		SWITCH				
S953	1-570-870-11	SWITCH, SLIDE				
		**				
	*A-7060-923-A	NR-1 BOARD, COMPLETE				
		**************				
		CAPACITOR				
C101	1-163-120-00	CERAMIC CHIP	130PF	5%	50V	
C102	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C103	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C104	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C105	1-124-225-00	ELECT	100MF	20%	6.3V	
C106	1-163-021-00	CERAMIC CHIP	0.01MF		50V	
C107	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C108	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C109	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
		DIODE				
D101	8-719-101-23	DIODE 1SS123				
		IC				
IC101	8-759-200-60	IC TA7060AP				
		TRANSISTOR				
Q101	8-729-100-67	TRANSISTOR 2SC1623				
Q102	8-729-100-67	TRANSISTOR 2SC1623				
Q103	8-729-900-99	TRANSISTOR DTA144WK				
		RESISTOR				
R101	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R102	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R103	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R104	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R105	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R106	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R107	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R108	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R109	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R110	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R111	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R112	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R114	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
		**				
	*A-7060-922-A	AT-6 BOARD, COMPLETE				
		**************				
		CAPACITOR				
C001	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V	
C002	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V	
C003	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C004	1-163-139-00	CERAMIC CHIP	820PF	5%	50V	
C005	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V	
C006	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V	
C007	1-163-035-00	CERAMIC CHIP	0.047MF	10%	25V	
C008	1-162-974-11	CERAMIC CHIP	0.01MF		50V	
C009	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C010	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V	
C011	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C012	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C013	1-163-035-00	CERAMIC CHIP	0.047MF	10%	25V	
C014	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V	
C015	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C016	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
		IC				
IC001	8-759-928-56	IC CXA1042M				
		COIL				
L001	1-410-389-11	INDUCTOR CHIP 47UH				
L002	1-410-656-21	INDUCTOR CHIP 150UH				
		TRANSISTOR				
Q001	8-729-100-76	TRANSISTOR 2SA812				
Q002	8-729-100-76	TRANSISTOR 2SA812				
		RESISTOR				
R001	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R002	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R003	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R004	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R005	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R006	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R007	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R008	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R009	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R010	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R011	1-216-049-00	METAL GLAZE	1K	5%	1/10W	

Ref.No	Part No.	Description			Remark
R012	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R013	1-216-091-00	METAL GLAZE	56K	5%	1/10W
R014	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R015	1-216-103-00	METAL GLAZE	180K	5%	1/10W

****

***A-7060-920-A** SS-81 BOARD, COMPLETE
****

A-7068-081-A RP-47P BOARD, COMPLETE

Part No.	Description
*1-622-939-11	FP-71 FLEXIBLE BOARD
*1-622-945-11	FP-59 FLEXIBLE BOARD
*1-622-946-11	FP-60 FLEXIBLE BOARD
*3-718-223-01	HOLDER, TE

CAPACITOR

Ref.No	Part No.	Description			Remark
C001	1-124-224-00	ELECT	47MF	20%	6.3V
C002	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C003	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C004	1-124-245-00	ELECT	4.7MF	20%	16V
C005	1-124-225-00	ELECT	100MF	20%	6.3V
C006	1-162-638-11	CERAMIC CHIP	1MF		16V
C007	1-162-638-11	CERAMIC CHIP	1MF		16V
C010	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C011	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C012	1-135-099-00	TANTAL. CHIP	2.2MF	20%	6.3V
C013	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C014	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C015	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C016	1-124-462-00	ELECT	10MF	20%	6.3V
C017	1-124-462-00	ELECT	10MF	20%	6.3V
C018	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C019	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C020	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C021	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C022	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C023	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C024	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C025	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C026	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C027	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C028	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C029	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C031	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C201	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C202	1-124-577-11	ELECT	82MF	20%	10V
C203	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C204	1-124-577-11	ELECT	82MF	20%	10V
C205	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C206	1-124-577-11	ELECT	82MF	20%	10V
C207	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C208	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C211	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C212	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C213	1-124-462-00	ELECT	10MF	20%	16V
C214	1-124-462-00	ELECT	10MF	20%	16V
C215	1-127-506-00	ELECT(SOLID)	1MF	20%	25V
C216	1-162-638-11	CERAMIC CHIP	1MF		16V
C217	1-163-035-00	CERAMIC CHIP	0.047MF	10%	25V
C218	1-124-258-00	ELECT	3.3MF	20%	25V
C219	1-124-462-00	ELECT	10MF	20%	16V
C220	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C221	1-124-462-00	ELECT	10MF	20%	16V
C222	1-135-099-00	TANTAL. CHIP	2.2MF	20%	6.3V
C223	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C224	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C225	1-124-596-11	ELECT	27MF	20%	16V
C226	1-124-596-11	ELECT	27MF	20%	16V
C227	1-124-596-11	ELECT	27MF	20%	16V
C228	1-124-236-00	ELECT	47MF	20%	16V
C301	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C302	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C303	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C304	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C305	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C306	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C307	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C308	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C309	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C310	1-163-035-00	CERAMIC CHIP	0.047MF	10%	25V

When indicating parts by reference number, please include the board name.

CONNECTOR

Ref.No	Part No.	Description
CN001	*1-564-014-00	PIN, CONNECTOR 4P
CN002	*1-564-014-00	PIN, CONNECTOR 4P
CN003	*1-566-537-11	CONNECTOR, FPC (NON ZIF) 5P
CN301	1-566-529-11	CONNECTOR, FPC (ZIF) 13P
CN302	*1-566-540-11	CONNECTOR, FPC (NON ZIF) 8P

DIODE

Ref.No	Part No.	Description
D001	8-719-100-05	DIODE IS2837
D002	8-719-801-45	DIODE 1SS187
D003	8-719-404-12	DIODE MA159
D004	8-719-404-12	DIODE MA159
D005	8-719-801-45	DIODE 1SS187
D006	8-719-105-28	DIODE RD2.4M-B
D007	8-719-100-03	DIODE 1S2835
D009	8-719-801-45	DIODE 1SS187
D208	8-719-200-36	DIODE E10QS04
D209	8-719-200-36	DIODE E10QS04
D223	8-719-200-27	DIODE E10DS2

IC

Ref.No	Part No.	Description
IC001	8-759-140-32	IC UPD78112GF
IC002	8-759-112-71	IC UPD7564G
IC003	8-759-207-00	IC TA7733F
IC004	8-759-100-94	IC UPC358G2
IC005	8-759-940-79	IC S-81350AG
IC220	8-759-202-45	IC CX20114
IC221	8-759-107-68	IC CX20115A
IC222	8-752-003-60	IC CX20036

COIL

Ref.No	Part No.	Description
L001	1-410-381-11	INDUCTOR CHIP 10UH
L205	1-410-627-11	COIL, CHOKE 100UH
L206	1-421-983-11	COIL, CHOKE 700UH
L207	1-421-983-11	COIL, CHOKE 700UH
L211	1-410-389-11	INDUCTOR CHIP 47UH
L301	1-408-777-00	INDUCTOR CHIP 10UH
L302	1-408-793-21	INDUCTOR CHIP 220UH

PHOTOSENSOR

Ref.No	Part No.	Description
PH001	8-729-905-07	PT480FI
PH002	8-729-905-07	PT480FI

TRANSISTOR

Ref.No	Part No.	Description
Q001	8-729-902-96	TRANSISTOR FMS1
Q002	8-729-903-10	TRANSISTOR FMW1
Q004	⚠8-729-105-29	TRANSISTOR 2SA1385
Q005	8-729-602-21	TRANSISTOR 2SC4154

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark
Q006	⚠8-729-805-25	TRANSISTOR 2SB1121	
Q007	⚠8-729-805-25	TRANSISTOR 2SB1121	
Q009	8-729-901-06	TRANSISTOR DTA144EK	
Q010	8-729-805-25	TRANSISTOR 2SB1121	
Q011	8-729-805-25	TRANSISTOR 2SB1121	
Q012	8-729-904-07	TRANSISTOR FMG2	
Q013	8-729-902-96	TRANSISTOR FMS1	
Q014	8-729-901-47	TRANSISTOR DTA143EK	
Q015	8-729-903-10	TRANSISTOR FMW1	
Q016	8-729-903-10	TRANSISTOR FMW1	
Q017	8-729-602-36	TRANSISTOR 2SA1602	
Q018	8-729-905-57	TRANSISTOR DTA124EU	
Q019	8-729-901-06	TRANSISTOR DTA144EK	
Q020	⚠8-729-106-40	TRANSISTOR 2SB1114	
Q021	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q022	8-729-905-45	TRANSISTOR DTA143EU	
Q023	8-729-901-01	TRANSISTOR DTC144EK	
Q024	8-729-905-12	TRANSISTOR DTA144EU	
Q025	8-729-904-07	TRANSISTOR FMG2	
Q203	8-729-805-25	TRANSISTOR 2SB1121	
Q204	8-729-805-25	TRANSISTOR 2SB1121	
Q216	8-729-901-06	TRANSISTOR DTA144EK	
Q217	8-729-904-07	TRANSISTOR FMG2	
Q218	8-729-602-36	TRANSISTOR 2SA1602	
Q219	8-729-904-07	TRANSISTOR FMG2	
Q302	8-729-117-54	TRANSISTOR 2SA1175	
Q303	8-729-100-76	TRANSISTOR 2SA812	

RESISTOR

Ref.No	Part No.	Description				Remark
R001	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R002	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R003	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R004	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R006	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R007	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R008	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R009	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R010	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R011	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R012	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R013	⚠1-216-170-91	METAL GLAZE	68	5%	1/8W	
R014	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R015	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R016	1-216-699-11	METAL CHIP	100K	0.50%	1/10W	
R017	1-216-699-11	METAL CHIP	100K	0.50%	1/10W	
R018	⚠1-216-033-91	METAL GLAZE	220	5%	1/10W	
R019	⚠1-216-033-91	METAL GLAZE	220	5%	1/10W	
R020	1-216-172-00	METAL GLAZE	82	5%	1/8W	
R024	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R025	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R026	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R027	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R029	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R030	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R031	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R032	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R033	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R034	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R035	1-216-107-00	METAL GLAZE	270K	5%	1/10W	
R036	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R037	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R039	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R040	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R041	1-216-009-00	METAL GLAZE	22	5%	1/10W	
R042	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R043	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R045	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R046	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R047	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R048	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R049	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R050	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R051	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R052	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R053	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R054	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R055	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R056	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R057	1-216-013-00	METAL GLAZE	33	5%	1/10W	
R058	1-216-136-00	METAL GLAZE	2.7	5%	1/8W	
R059	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R060	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R061	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R062	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R065	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R066	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R067	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R068	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R069	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R070	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R071	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R072	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R073	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R074	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R075	⚠1-216-170-91	METAL GLAZE	68	5%	1/8W	
R076	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R077	1-216-699-11	METAL CHIP	100K	0.50%	1/10W	
R078	1-216-699-11	METAL CHIP	100K	0.50%	1/10W	
R079	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R080	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R081	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R082	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R083	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R084	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R085	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R086	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R087	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R089	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R090	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R201	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R202	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R204	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R211	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R212	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R213	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R214	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R215	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R216	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R217	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R218	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R219	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R220	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R221	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R222	1-216-302-00	METAL GLAZE	2.7	5%	1/10W	
R223	1-216-302-00	METAL GLAZE	2.7	5%	1/10W	
R224	1-216-302-00	METAL GLAZE	2.7	5%	1/10W	
R225	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R226	1-214-972-00	METAL	0.22	1%	1/4W	
R227	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R228	1-216-037-00	METAL GLAZE	330	5%	1/10W	

When indicating parts by reference number, please include the board name.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description			Remark
R229	1-216-041-00	METAL GLAZE	470	5%	1/10W
R230	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R301	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R302	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R304	1-216-009-00	METAL GLAZE	22	5%	1/10W
R305	1-216-043-00	METAL GLAZE	560	5%	1/10W
R306	1-216-037-00	METAL GLAZE	330	5%	1/10W
R307	1-216-041-00	METAL GLAZE	470	5%	1/10W
R308	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R309	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R310	1-216-296-00	METAL GLAZE	0	5%	1/8W
R311	1-216-296-00	METAL GLAZE	0	5%	1/8W

TESTPOINT

Ref.No	Part No.	Description
TP002	*1-535-622-11	PIN, TERMINAL
TP004	*1-535-622-11	PIN, TERMINAL
TP005	*1-535-622-11	PIN, TERMINAL
TP006	*1-535-622-11	PIN, TERMINAL
TP007	*1-535-622-11	PIN, TERMINAL
TP008	*1-535-622-11	PIN, TERMINAL
TP010	*1-535-622-11	PIN, TERMINAL

CRYSTAL

Ref.No	Part No.	Description
X001	1-567-885-11	VIBRATOR, CRYSTAL 12MHz
X002	1-567-884-11	OSCILLATOR, CERAMIC 700KHz

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*A-7060-919-A VA-36 BOARD, COMPLETE

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A-7068-091-A AU-32P, BOARD, COMPLETE (HIC)
A-7068-092-A CC-10, BOARD, COMPLETE (HIC)
A-7068-093-A YP-8, BOARD, COMPLETE (HIC)

CAPACITOR

Ref.No	Part No.	Description			Remark
C251	1-124-638-11	ELECT	22MF	20%	10V
C252	1-124-279-11	ELECT	3.3MF	20%	25V
C331	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C332	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C333	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C334	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C335	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C336	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C337	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C338	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C339	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C340	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C341	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C342	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C343	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C344	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C345	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C346	1-163-089-00	CERAMIC CHIP	6PF	0.25PF	50V
C347	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C348	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C349	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C350	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C351	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C352	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C353	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C354	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C355	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C356	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C357	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C359	1-124-442-00	ELECT	330MF	20%	6.3V
C360	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C361	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C362	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C363	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C364	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C365	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C366	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C367	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C368	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C369	1-124-229-00	ELECT	33MF	20%	6.3V
C370	1-124-462-00	ELECT	10MF	20%	10V
C371	1-124-222-00	ELECT	22MF	20%	6.3V
C372	1-124-222-00	ELECT	22MF	20%	6.3V
C373	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C374	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C375	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C376	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C377	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C380	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C381	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C382	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C391	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C392	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C393	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C394	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C395	1-124-462-00	ELECT	10MF	20%	10V
C396	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C397	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C398	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C399	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C400	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C404	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C405	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C406	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C408	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C409	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C410	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V
C411	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C412	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C413	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C414	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C415	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C416	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C490	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C491	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C492	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C493	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C494	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C496	1-124-225-00	ELECT	100MF	20%	6.3V
C497	1-124-225-00	ELECT	100MF	20%	6.3V
C501	1-124-224-00	ELECT	47MF	20%	6.3V
C502	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C503	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V
C504	1-124-225-00	ELECT	100MF	20%	6.3V
C505	1-124-225-00	ELECT	100MF	20%	6.3V
C507	1-135-096-21	TANTAL. CHIP	4.7MF	20%	10V
C508	1-124-222-00	ELECT	22MF	20%	6.3V
C510	1-135-099-00	TANTAL. CHIP	2.2MF	20%	6.3V
C511	1-124-225-00	ELECT	100MF	20%	6.3V
C512	1-124-229-00	ELECT	33MF	20%	6.3V
C513	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V
C514	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V

CONNECTOR

Ref.No	Part No.	Description
CN001	*1-566-098-11	PIN, BOARD TO BOARD 14P

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
CN002	*1-566-091-11	PIN, BOARD TO BOARD 6P	
CN004	*1-563-467-11	SOCKET, SMALL TYPE 5P	
CN332	*1-537-087-11	JACK BOARD	
CN333	*1-564-003-00	PIN, CONNECTOR 4P	
CN501	*1-564-001-11	PIN, CONNECTOR 2P	
CN502	*1-564-002-00	PIN, CONNECTOR 3P	
		VARIABLE CAPACITOR	
CV331	1-141-331-11	CAP, VAR, TRIMMER (CHIP) 30P	
CV332	1-141-331-11	CAP, VAR, TRIMMER (CHIP) 30P	
CV333	1-141-311-11	CAP, VAR, TRIMMER (CHIP) 20P	
CV334	1-141-331-11	CAP, VAR, TRIMMER (CHIP) 30P	
		DIODE	
D331	8-719-106-71	DIODE RD12M-B2	
D332	8-719-106-71	DIODE RD12M-B2	
D333	8-719-105-91	DIODE RD5.6M-B1	
D334	8-719-105-45	DIODE RD3.3M-B1	
D335	8-719-101-23	DIODE 1SS123	
D336	8-719-105-45	DIODE RD3.3M-B1	
D338	8-719-100-05	DIODE 1S2837	
D339	8-719-106-43	DIODE RD9.1M-B1	
D340	8-719-106-43	DIODE RD9.1M-B1	
D341	8-719-106-43	DIODE RD9.1M-B1	
D342	8-719-106-43	DIODE RD9.1M-B1	
D343	8-719-106-43	DIODE RD9.1M-B1	
D344	8-719-105-40	DIODE RD3.0M-B2	
D501	8-719-106-71	DIODE RD12M-B2	
		DELAY LINE	
DL331	1-415-517-21	DELAY LINE, DUAL 1H-2H	
		FILTER	
FL251	1-235-612-21	BPF	
FL252	1-235-611-21	BPF	
FL331	1-409-394-11	TRAP, CHROMA EMPHASIS	
FL332	1-235-632-11	BPF	
FL333	1-235-633-11	BPF	
FL501	1-235-398-11	BPF	
		IC	
IC331	8-759-745-64	IC NJM4560M	
IC332	8-759-204-51	IC TC40H008F	
IC333	8-759-112-72	IC UPD6142G-101	
		COIL	
L331	1-410-389-11	INDUCTOR CHIP 47UH	
L332	1-410-377-11	INDUCTOR CHIP 4.7UH	
L333	1-408-795-21	INDUCTOR CHIP 330UH	
L334	1-410-167-41	INDUCTOR CHIP 820UH	
L335	1-410-657-21	INDUCTOR CHIP 180UH	
L336	1-408-783-00	INDUCTOR CHIP 33UH	
L337	1-410-381-11	INDUCTOR CHIP 10UH	
L338	1-410-380-21	INDUCTOR CHIP 8.2UH	
L339	1-408-785-21	INDUCTOR CHIP 47UH	
L340	1-410-389-11	INDUCTOR CHIP 47UH	
L341	1-410-389-11	INDUCTOR CHIP 47UH	
L342	1-410-389-11	INDUCTOR CHIP 47UH	
L343	1-408-776-00	INDUCTOR CHIP 8.2UH	
L344	1-408-777-00	INDUCTOR CHIP 10UH	
L345	1-410-369-11	INDUCTOR CHIP 1UH	
L346	1-410-369-11	INDUCTOR CHIP 1UH	
L348	1-410-388-21	INDUCTOR CHIP 39UH	
L349	1-410-386-11	INDUCTOR CHIP 27UH	
L350	1-410-656-21	INDUCTOR CHIP 150UH	
L351	1-410-657-21	INDUCTOR CHIP 180UH	
L352	1-410-389-11	INDUCTOR CHIP 47UH	
L353	1-410-393-11	INDUCTOR CHIP 100UH	
L354	1-410-656-21	INDUCTOR CHIP 150UH	
L355	1-410-656-21	INDUCTOR CHIP 150UH	
L357	1-410-385-11	INDUCTOR CHIP 22UH	
L358	1-410-390-11	INDUCTOR CHIP 56UH	
L361	1-408-796-41	INDUCTOR CHIP 390UH	
L363	1-410-381-11	INDUCTOR CHIP 10UH	
		COIL	
LV331	1-404-594-11	COIL, VARIABLE 10UH	
		TRANSISTOR	
Q251	8-729-109-42	TRANSISTOR 2SK94-X2	
Q252	8-729-905-15	TRANSISTOR DTC144WU	
Q331	8-729-602-21	TRANSISTOR 2SC4154	
Q332	8-729-602-21	TRANSISTOR 2SC4154	
Q333	8-729-602-21	TRANSISTOR 2SC4154	
Q334	8-729-602-21	TRANSISTOR 2SC4154	
Q335	8-729-602-21	TRANSISTOR 2SC4154	
Q336	8-729-905-15	TRANSISTOR DTC144WU	
Q337	8-729-905-09	TRANSISTOR DTA144WU	
Q339	8-729-602-21	TRANSISTOR 2SC4154	
Q340	8-729-905-15	TRANSISTOR DTC144WU	
Q341	8-729-602-21	TRANSISTOR 2SC4154	
Q342	8-729-905-15	TRANSISTOR DTC144WU	
Q343	8-729-602-21	TRANSISTOR 2SC4154	
Q346	8-729-905-09	TRANSISTOR DTA144WU	
Q347	8-729-602-21	TRANSISTOR 2SC4154	
Q348	8-729-602-21	TRANSISTOR 2SC4154	
Q349	8-729-602-21	TRANSISTOR 2SC4154	
Q350	8-729-905-15	TRANSISTOR DTC144WU	
Q351	8-729-905-15	TRANSISTOR DTC144WU	
Q352	8-729-117-54	TRANSISTOR 2SA1175	
Q353	8-729-905-15	TRANSISTOR DTC144WU	
Q354	8-729-602-21	TRANSISTOR 2SC4154	
Q356	8-729-100-76	TRANSISTOR 2SA812	
Q357	8-729-100-66	TRANSISTOR 2SC1623	
Q358	8-729-905-15	TRANSISTOR DTC144WU	
Q359	8-729-602-21	TRANSISTOR 2SC4154	
Q361	8-729-602-36	TRANSISTOR 2SA1602	
Q362	8-729-602-21	TRANSISTOR 2SC4154	
Q363	8-729-905-15	TRANSISTOR DTC144WU	
Q364	8-729-905-15	TRANSISTOR DTC144WU	
Q366	8-729-602-21	TRANSISTOR 2SC4154	
Q367	8-729-905-15	TRANSISTOR DTC144WU	
Q368	8-729-602-21	TRANSISTOR 2SC4154	
Q369	8-729-101-07	TRANSISTOR 2SB798	
Q370	8-729-602-36	TRANSISTOR 2SA1602	
Q371	8-729-602-36	TRANSISTOR 2SA1602	
Q373	8-729-602-36	TRANSISTOR 2SA1602	
Q375	8-729-903-10	TRANSISTOR FMW1	
Q376	8-729-905-09	TRANSISTOR DTA144WU	
Q377	8-729-602-21	TRANSISTOR 2SC4154	
Q378	8-729-602-21	TRANSISTOR 2SC4154	
Q379	8-729-602-36	TRANSISTOR 2SA1602	
		RESISTOR	
R251	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R252	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R253	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R254	1-216-109-00	METAL GLAZE 330K 5% 1/10W	
R255	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R331	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R332	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R334	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R335	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R340	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R341	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R342	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R343	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R344	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R345	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R346	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R347	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R348	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R350	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R351	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R352	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R353	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R354	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R355	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R356	1-216-015-00	METAL GLAZE	39	5%	1/10W	
R357	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R358	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R360	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R361	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R362	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R363	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R364	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R365	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R366	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R367	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R368	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R369	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R370	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R371	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R372	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R373	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R375	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R376	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R378	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R379	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R380	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R381	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R382	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R383	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R384	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R385	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R386	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R387	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R388	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R389	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R390	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R391	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R392	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R393	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R394	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R395	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R396	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R397	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R398	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R399	1-216-009-00	METAL GLAZE	22	5%	1/10W	
R400	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R401	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R402	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R403	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R404	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R405	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R406	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R407	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R409	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R410	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R411	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R412	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R413	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R414	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R415	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R416	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R417	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R418	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R422	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R424	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R425	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R426	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R428	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R429	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R442	1-249-417-11	CARBON	1K	5%	1/4W	
R443	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R444	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R445	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R446	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R447	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R448	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R449	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R450	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R451	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R452	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R453	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R454	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R455	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R456	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R457	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R458	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R459	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R460	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R461	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R462	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R463	1-216-138-00	METAL GLAZE	3.3	5%	1/8W	
R465	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R466	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R467	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R468	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R469	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R470	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R471	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R472	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R475	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R476	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R477	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R478	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R479	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R480	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R481	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R482	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R483	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R484	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R485	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R487	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R488	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R489	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R490	1-216-009-00	METAL GLAZE	22	5%	1/10W	
R491	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R492	1-216-089-00	METAL GLAZE	47K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R493	1-216-033-00	METAL GLAZE	220	5%	1/10W
R494	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R507	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R514	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R515	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R516	1-216-003-11	METAL GLAZE	12	5%	1/10W
R517	1-216-073-00	METAL GLAZE	10K	5%	1/10W

VARIABLE RESISTOR

Ref.No	Part No.	Description
RV251	1-230-873-11	RES, ADJ, METAL GLAZE 47K
RV331	1-230-867-11	RES, ADJ, METAL GLAZE 1K
RV332	1-230-868-11	RES, ADJ, METAL GLAZE 2.2K
RV333	1-230-868-11	RES, ADJ, METAL GLAZE 2.2K
RV334	1-230-871-11	RES, ADJ, METAL GLAZE 22K

THERMISTOR

Ref.No	Part No.	Description
TH331	1-800-200-00	THERMISTOR

TESTPOINT

Ref.No	Part No.	Description
TP331	*1-535-622-11	PIN, TERMINAL
TP332	*1-535-622-11	PIN, TERMINAL

CRYSTAL

Ref.No	Part No.	Description
X331	1-567-347-11	OSCILLATOR, CERAMIC
X332	1-567-504-11	OSCILLATOR, CRYSTAL
X333	1-567-699-21	VIBRATOR, CRYSTAL

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A-7060-693-A FP-53 FLEXIBLE BOARD, COMPLETE

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3-713-904-01 HOLDER (2), LED

DIODE

Ref.No	Part No.	Description
D302	8-719-940-81	DIODE GL452S
D303	8-719-801-55	TLP907-O
D304	8-719-801-55	TLP907-O

SWITCH

Ref.No	Part No.	Description
S301	1-570-869-11	SWITCH, PUSH (2 KEY) TAPE SELECT/REC PROOF

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*A-7060-926-A VC-24P BOARD, COMPLETE

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A-7068-094-A CP-19P BOARD, COMPLETE(HIC)

*3-718-261-01 HOLDER, WB SENSOR

CAPACITOR

Ref.No	Part No.	Description			Remark
C701	1-162-637-11	CERAMIC CHIP	0.47MF		16V
C702	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C703	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C704	1-135-083-00	TANTAL CHIP	0.47MF	20%	25V
C705	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V
C706	1-126-204-11	ELECT	47MF	20%	16V
C707	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C708	1-126-204-11	ELECT	47MF	20%	16V
C709	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V
C710	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V
C711	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C712	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C713	1-126-206-11	ELECT	100MF	20%	6.3V
C714	1-126-206-11	ELECT	100MF	20%	6.3V
C715	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C716	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C717	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C718	1-135-096-21	TANTAL CHIP	4.7MF	20%	10V
C719	1-162-638-11	CERAMIC CHIP	1MF		16V
C721	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C723	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C724	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C725	1-135-096-21	TANTAL CHIP	4.7MF	20%	10V
C726	1-135-091-00	TANTAL CHIP	1MF	20%	16V
C727	1-135-091-00	TANTAL CHIP	1MF	20%	16V
C728	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C729	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V
C730	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C732	1-135-091-00	TANTAL CHIP	1MF	20%	16V
C733	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C734	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C735	1-135-091-00	TANTAL CHIP	1MF	20%	16V
C736	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C737	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C738	1-135-091-00	TANTAL CHIP	1MF	20%	16V
C741	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C742	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C743	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C744	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C745	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C746	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C747	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C749	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C751	1-135-101-21	TANTAL CHIP	22MF	20%	6.3V
C754	1-135-091-00	TANTAL CHIP	1MF	20%	16V
C755	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C808	1-135-091-00	TANTAL CHIP	1MF	20%	16V
C809	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C810	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C811	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C812	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C813	1-135-096-21	TANTAL CHIP	4.7MF	20%	10V
C814	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C815	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C817	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C818	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C819	1-135-091-00	TANTAL CHIP	1MF	20%	16V
C820	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C821	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C822	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C823	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C824	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C825	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C828	1-124-566-11	ELECT	120MF	20%	6.3V
C829	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C851	1-130-467-00	MYLAR	470PF	5%	50V
C852	1-130-481-00	MYLAR	0.0068MF	5%	50V
C853	1-135-100-21	TANTAL CHIP	6.8MF	20%	6.3V
C854	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C855	1-135-100-21	TANTAL CHIP	6.8MF	20%	6.3V
C856	1-162-638-11	CERAMIC CHIP	1MF		16V
C857	1-163-104-00	CERAMIC CHIP	30PF	5%	50V
C858	1-163-104-00	CERAMIC CHIP	30PF	5%	50V
C859	1-126-208-11	ELECT	47MF	20%	4V
C860	1-126-208-11	ELECT	47MF	20%	4V

CONNECTOR

Ref.No	Part No.	Description
CN701	*1-564-014-00	PIN, CONNECTOR 4P

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
CN702	*1-566-537-11	CONNECTOR, FPC (NON ZIF) 5P	
CN703	*1-566-537-11	CONNECTOR, FPC (NON ZIF) 5P	
CN801	*1-564-012-00	PIN, CONNECTOR 2P	

DIODE

Ref.No	Part No.	Description	Remark
D701	8-719-100-05	DIODE 1S2837	
D801	8-719-100-03	DIODE 1S2835	
D851	8-719-100-05	DIODE IS2837	

DELAY LINE

Ref.No	Part No.	Description	Remark
DL801	1-415-448-21	DELAY LINE	

IC

Ref.No	Part No.	Description	Remark
IC701	8-759-100-94	IC UPC358G2	
IC702	8-752-031-96	IC CXA1070Q	
IC703	8-759-106-47	IC UPD4538BG	
IC704	8-759-106-47	IC UPD4538BG	
IC801	8-752-032-92	IC CXA1072Q	
IC851	8-759-939-68	IC TL062ACPS	
IC852	8-759-100-93	IC UPC393G2	
IC853	8-759-106-23	IC UPD4066BG	
IC854	8-759-012-75	IC MC146805F2FPSC82533F	

COIL

Ref.No	Part No.	Description	Remark
L701	1-421-904-21	COIL, CHOKE 47UH	
L702	1-410-371-21	INDUCTOR CHIP 1.5UH	
L704	1-410-371-21	INDUCTOR CHIP 1.5UH	
L801	1-410-393-11	INDUCTOR CHIP 100UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q701	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q702	8-729-100-75	TRANSISTOR 2SA812-M5	
Q703	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q704	8-729-100-76	TRANSISTOR 2SA812	
Q705	8-729-100-76	TRANSISTOR 2SA812	
Q706	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q707	8-729-100-76	TRANSISTOR 2SA812	
Q708	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q709	8-729-100-76	TRANSISTOR 2SA812	
Q712	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q713	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q714	8-729-100-76	TRANSISTOR 2SA812	
Q715	8-729-100-76	TRANSISTOR 2SA812	
Q716	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q781	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q801	8-729-100-76	TRANSISTOR 2SA812	
Q802	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q851	8-729-903-30	TRANSISTOR DTC144TK	
Q852	8-729-903-30	TRANSISTOR DTC144TK	
Q853	8-729-904-20	TRANSISTOR FMA2	
Q854	8-729-904-20	TRANSISTOR FMA2	
Q857	8-729-901-06	TRANSISTOR DTA144EK	
Q858	8-729-904-07	TRANSISTOR FMG2	
Q859	8-729-904-07	TRANSISTOR FMG2	
Q862	8-729-901-01	TRANSISTOR DTC144EK	

RESISTOR

Ref.No	Part No.	Description			Remark
R701	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R702	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R703	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R704	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R705	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R706	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R707	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R708	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R709	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R710	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R711	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R712	1-216-665-11	METAL CHIP	3.9K	0.50%	1/10W
R713	1-216-663-11	METAL CHIP	3.3K	0.50%	1/10W
R714	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R715	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R716	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R717	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R718	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R719	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R720	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R721	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R722	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R723	1-216-045-00	METAL GLAZE	680	5%	1/10W
R724	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R725	1-216-045-00	METAL GLAZE	680	5%	1/10W
R726	1-216-295-00	METAL GLAZE	0	5%	1/10W
R727	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R728	1-216-047-00	METAL GLAZE	820	5%	1/10W
R729	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R731	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R732	1-216-689-11	METAL CHIP	39K	0.50%	1/10W
R733	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R734	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R735	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R736	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R741	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R742	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R743	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R744	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R745	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R746	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R748	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R749	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R750	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R751	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R754	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R755	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R756	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R757	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R758	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R759	1-216-748-11	METAL GLAZE	39K	5%	1/10W
R760	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R761	1-216-091-00	METAL GLAZE	56K	5%	1/10W
R762	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R763	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R764	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R767	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R768	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R769	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R770	1-216-115-00	METAL GLAZE	560K	5%	1/10W
R771	1-216-119-00	METAL GLAZE	820K	5%	1/10W
R772	1-216-695-00	METAL CHIP	68K	0.5%	1/10W
R773	1-216-697-00	METAL CHIP	82K	0.5%	1/10W
R774	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R775	1-216-037-00	METAL GLAZE	330	5%	1/10W
R776	1-216-295-00	METAL GLAZE	0	5%	1/10W
R778	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R779	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R781	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R801	1-216-134-00	METAL GLAZE	2.2	5%	1/8W
R806	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R807	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R808	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R809	1-216-083-00	METAL GLAZE	27K	5%	1/10W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
R810	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R811	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R812	1-216-748-11	METAL GLAZE	39K	5%	1/10W
R813	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R816	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R817	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R818	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R819	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R820	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R821	1-216-099-00	METAL GLAZE	120K	5%	1/10W
R823	1-216-091-00	METAL GLAZE	56K	5%	1/10W
R825	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R826	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R827	1-216-748-11	METAL GLAZE	39K	5%	1/10W
R828	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R830	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R851	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R852	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R853	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R854	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R855	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R856	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R857	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R858	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R859	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R860	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R861	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R862	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R863	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R864	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R865	1-216-115-00	METAL GLAZE	560K	5%	1/10W
R866	1-216-107-00	METAL GLAZE	270K	5%	1/10W
R867	1-216-101-00	METAL GLAZE	150K	5%	1/10W
R868	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R869	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R870	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R871	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R872	1-216-107-00	METAL GLAZE	270K	5%	1/10W
R873	1-216-099-00	METAL GLAZE	120K	5%	1/10W
R874	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R875	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R876	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R877	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R878	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R879	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R880	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R881	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R882	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R883	1-249-425-11	CARBON	4.7K	5%	1/4W
R885	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R886	1-216-073-00	METAL GLAZE	10K	5%	1/10W

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV701	1-230-869-11	RES, ADJ, METAL GLAZE 4.7K	
RV702	1-230-869-11	RES, ADJ, METAL GLAZE 4.7K	
RV704	1-230-873-11	RES, ADJ, METAL GLAZE 47K	
RV801	1-230-873-11	RES, ADJ, METAL GLAZE 47K	
RV802	1-230-873-11	RES, ADJ, METAL GLAZE 47K	
RV803	1-230-873-11	RES, ADJ, METAL GLAZE 47K	
RV804	1-230-873-11	RES, ADJ, METAL GLAZE 47K	
RV805	1-230-871-11	RES, ADJ, METAL GLAZE 22K	
RV806	1-230-871-11	RES, ADJ, METAL GLAZE 22K	
RV807	1-230-873-11	RES, ADJ, METAL GLAZE 47K	
RV851	1-230-871-11	RES, ADJ, METAL GLAZE 22K	

When indicating parts by reference number, please include the board name.

SENSOR

Ref.No	Part No.	Description	Remark
SB851	1-807-684-11	SENSOR, WHITE BALANCE	

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*A-7060-925-A VC-23P BOARD, COMPLETE
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A-7068-082-A DT-62P BOARD, COMPLETE (HIC)

Part No.	Description
1-622-942-11	PC BOARD, FP-54 FLEXIBLE
3-718-224-01	HOLDER (A), C PC BOARD
3-718-256-01	HOLDER (B), C PC BOARD
*3-719-692-01	PLATE (R), SHIELD, VC-23

CAPACITOR

Ref.No	Part No.	Description			Remark
C602	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C603	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C604	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C605	1-124-258-00	ELECT	3.3MF	20%	50V
C606	1-163-013-00	CERAMIC CHIP	0.0022MF	10%	50V
C607	1-124-478-11	ELECT	100MF	20%	25V
C609	1-124-257-00	ELECT	2.2MF	20%	50V
C611	1-162-638-11	CERAMIC CHIP	1MF		16V
C612	1-124-224-00	ELECT	47MF	20%	6.3V
C618	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C619	1-124-584-00	ELECT	100MF	20%	10V
C620	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C621	1-124-242-00	ELECT	33MF	20%	25V
C622	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C623	1-124-247-00	ELECT	10MF	20%	25V
C624	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C625	1-124-584-00	ELECT	100MF	20%	10V
C626	1-124-225-00	ELECT	100MF	20%	6.3V
C627	1-124-225-00	ELECT	100MF	20%	6.3V
C628	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C629	1-124-258-00	ELECT	3.3MF	20%	50V
C630	1-124-247-00	ELECT	10MF	20%	35V
C631	1-124-247-00	ELECT	10MF	20%	35V
C632	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C634	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C635	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C636	1-124-258-00	ELECT	3.3MF	20%	35V
C652	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C654	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C655	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C656	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C658	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C659	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C660	1-162-638-11	CERAMIC CHIP	1MF		16V
C661	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C662	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C663	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C664	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C665	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C666	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C667	1-163-089-00	CERAMIC CHIP	6PF	0.5PF	50V
C668	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C669	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C670	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C671	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN601	*1-506-743-11	PIN, CONNECTOR 5P	

TRIMMER

Ref.No	Part No.	Description	Remark
CT651	1-141-347-11	CAP, VAR, TRIMMER (CHIP) 10P	
CT652	1-141-331-11	CAP, VAR, TRIMMER (CHIP) 30P	

DIODE

Ref.No	Part No.	Description	Remark
D602	8-719-100-05	DIODE 1S2837	
D603	8-719-100-03	DIODE 1S2835	
D604	8-719-100-03	DIODE 1S2835	
D605	8-719-100-03	DIODE 1S2835	
D651	8-713-220-00	DIODE 1T32-2	

IC

Ref.No	Part No.	Description	Remark
IC601	8-750-010-65	IC IU024AK-10A	
IC602	8-752-324-14	IC CXD1141M	
IC651	8-752-321-16	IC CXD1030M	

COIL

Ref.No	Part No.	Description	Remark
L601	1-421-904-21	COIL, CHOKE 47UH	
L608	1-421-904-21	COIL, CHOKE 47UH	
L609	1-410-393-11	INDUCTOR CHIP 100UH	
L651	1-410-389-11	INDUCTOR CHIP 47UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q601	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q602	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q603	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q604	8-729-105-53	TRANSISTOR 2SK300	
Q605	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q606	8-729-100-76	TRANSISTOR 2SA812	
Q607	8-729-101-07	TRANSISTOR 2SB798	
Q608	8-729-103-72	TRANSISTOR 2SD1005	
Q651	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q652	8-729-175-73	TRANSISTOR 2SC2757	
Q653	8-729-175-72	TRANSISTOR 2SC2757-T33	

RESISTOR

Ref.No	Part No.	Description	Remark
R601	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R602	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R603	1-216-107-00	METAL GLAZE 270K 5% 1/10W	
R604	1-216-748-11	METAL GLAZE 39K 5% 1/10W	
R605	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R606	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R607	1-216-039-00	METAL GLAZE 390 5% 1/10W	
R608	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R609	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R610	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R611	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R612	1-216-308-00	METAL GLAZE 4.7 5% 1/10W	
R613	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R614	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R615	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R616	1-216-154-00	METAL GLAZE 15 5% 1/8W	
R617	1-216-154-00	METAL GLAZE 15 5% 1/8W	
R618	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R620	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R651	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R652	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R654	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R655	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R656	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R657	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R658	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R660	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R661	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R662	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R663	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R664	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R665	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R667	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R668	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R669	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R670	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R671	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R672	1-216-039-00	METAL GLAZE 390 5% 1/10W	
R673	1-216-039-00	METAL GLAZE 390 5% 1/10W	
R674	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R675	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R677	1-216-121-00	METAL GLAZE 1M 5% 1/10W	

When indicating parts by reference number, please include the board name.

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV601	1-230-873-11	RES, ADJ, METAL GLAZE 47K	

CRYSTAL

Ref.No	Part No.	Description	Remark
X651	1-567-733-11	VIBRATOR, CRYSTAL 17.7MHz	
X652	1-567-732-12	VIBRATOR, CRYSTAL 28.3750MHz	

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*A-7085-010-A VF-9P BOARD, COMPLETE

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(Include LD-8P BOARD)

Ref.No	Part No.	Description	Remark
	1-526-978-11	SOCKET, ASSY CRT	

CAPACITOR

Ref.No	Part No.	Description	Remark
C901	1-162-638-11	CERAMIC CHIP 1MF 16V	
C902	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C903	1-163-023-00	CERAMIC CHIP 0.015MF 10% 50V	
C904	1-124-444-00	ELECT 220MF 20% 6.3V	
C905	1-163-141-00	CERAMIC CHIP 0.001MF 10% 50V	
C906	1-163-081-00	CERAMIC CHIP 0.22MF 25V	
C907	⚠1-130-481-11	MYLAR 0.0068MF 5% 50V	
C908	⚠1-163-019-91	CERAMIC CHIP 0.0068MF 10% 50V	
C909	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C910	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
C911	1-124-255-00	ELECT 1MF 20% 50V	
C912	1-163-137-00	CERAMIC CHIP 680PF 5% 50V	
C913	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
C915	1-136-175-00	FILM 0.68MF 5% 50V	
C916	1-124-224-00	ELECT 47MF 20% 6.3V	
C917	1-163-209-00	CERAMIC CHIP 0.0015MF 5% 50V	
C918	1-124-462-00	ELECT 10MF 20% 16V	
C919	1-163-033-00	CERAMIC CHIP 0.022MF 10% 25V	
C920	1-124-444-00	ELECT 220MF 20% 6.3V	
C921	1-124-638-11	ELECT 22MF 20% 6.3V	
C922	1-162-993-11	CERAMIC CHIP 0.22MF 10% 16V	
C923	1-131-388-00	TANTALUM 68MF 10% 3.15V	

CONNECTOR

Ref.No	Part No.	Description	Remark
CN901	*1-564-001-11	PIN, CONNECTOR 2P	
CN902	*1-564-001-11	PIN, CONNECTOR 2P	

COMBINATION PARTS

Ref.No	Part No.	Description	Remark
CP901	1-237-730-11	RES, ADJ 470/2.2K/2.2K/1M	

DIODE

Ref.No	Part No.	Description	Remark
D901	8-719-101-23	DIODE 1SS123	
D902	8-719-801-26	DIODE TLR223	
D903	8-719-100-03	DIODE 1S2835	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description				Remark
		IC				
IC901	8-759-403-49	IC AN2510S				
		COIL				
L901	⚠1-408-980-41	MICRO INDUCTOR 68UH				
L902	1-408-775-21	INDUCTOR CHIP 6.8UH				
L903	⚠1-459-747-21	COIL, FERRITE (HLC)				
		IC LINK				
PS901	⚠1-532-933-11	LINK, IC 0.25A				
		TRANSISTOR				
Q901	⚠8-729-900-99	TRANSISTOR DTA144WK				
Q902	8-729-100-67	TRANSISTOR 2SC1623-L7				
Q903	8-729-106-64	TRANSISTOR 2SD1615				
Q904	8-729-216-32	TRANSISTOR 2SA1163G				
		RESISTOR				
R901	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R903	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R904	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R905	⚠1-216-073-91	METAL GLAZE	10K	5%	1/10W	
R906	⚠1-216-051-91	METAL GLAZE	1.2K	5%	1/10W	
R907	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R908	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R909	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R910	1-216-125-00	METAL GLAZE	1.5M	5%	1/10W	
R911	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R912	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W	
R913	1-216-128-11	METAL GLAZE	2M	5%	1/10W	
R914	1-216-019-00	METAL GLAZE	56	5%	1/10W	
R915	1-216-068-00	METAL GLAZE	6.2K	5%	1/10W	
R916	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R917	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R918	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R919	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W	
R920	1-216-306-11	METAL GLAZE	3.9	5%	1/10W	
R921	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R922	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R923	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R924	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R928	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R929	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R930	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R931	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R932	1-216-025-00	METAL GLAZE	100	5%	1/10W	
		VARIABLE RESISTOR				
RV901	1-230-203-00	RES, ADJ, METAL GLAZE 2.2M				
		TRANSFORMER				
T901	⚠1-439-414-11	TRANSFORMER ASSY, FLYBACK				
		THERMISTOR				
TH901	1-807-938-11	THERMISTOR (500)				

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Ref.No	Part No.	Description				Remark
	*1-622-923-22	LD-8P BOARD ********				
		DIODE				
D904	8-719-404-19	DIODE LN1251C				

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Ref.No	Part No.	Description				Remark
	*A-7060-930-A	FD-4P BOARD, COMPLETE ***************				
		CAPACITOR				
C151	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C152	1-162-638-11	CERAMIC CHIP	1MF		16V	
C153	1-162-638-11	CERAMIC CHIP	1MF		16V	
C154	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V	
C155	1-163-101-00	CERAMIC CHIP	22PF	5%	50V	
C156	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	
C157	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C158	1-162-638-11	CERAMIC CHIP	1MF		16V	
C159	1-163-035-00	CERAMIC CHIP	0.047MF	10%	25V	
C160	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C161	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C165	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C166	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V	
C167	1-135-100-21	TANTAL. CHIP	6.8MF	20%	6.3V	
		CONNECTOR				
CN151	*1-566-533-11	CONNECTOR, FPC (ZIF) 17P				
CN152	*1-564-001-11	PIN, CONNECTOR 2P				
		TRIMMER				
CT151	1-141-331-11	CAP, VAR, TRIMMER (CHIP) 30P				
		DIODE				
D151	8-719-404-12	DIODE MA159				
D152	8-719-404-12	DIODE MA159				
D153	⚠8-719-105-73	DIODE RD4.7M-B2				
D154	8-719-105-99	DIODE RD6.2M-B1				
		IC				
IC151	8-759-140-70	IC UPD7503G-714-12				
IC152	8-759-937-56	IC S-8054ALB-LM				
		INDICATOR TUBE				
ND151	1-808-002-21	DISPLAY PANEL, LIQUID CRYSTAL				
		TRANSISTOR				
Q151	8-729-602-21	TRANSISTOR 2SC4154				
Q152	⚠8-729-602-36	TRANSISTOR 2SA1602				
Q153	8-729-109-43	TRANSISTOR 2SK94-X3				
Q154	8-729-903-97	TRANSISTOR FMS1FE				
Q155	8-729-602-21	TRANSISTOR 2SC4154				
Q156	8-729-602-36	TRANSISTOR 2SA1602				
Q157	8-729-602-36	TRANSISTOR 2SA1602				
Q158	8-729-602-36	TRANSISTOR 2SA1602				
Q159	8-729-602-36	TRANSISTOR 2SA1602				
Q160	8-729-602-36	TRANSISTOR 2SA1602				
Q162	8-729-905-12	TRANSISTOR DTA144EU				
Q163	8-729-901-03	TRANSISTOR DTC144WK				

When indicating parts by reference number, please include the board name.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

RESISTOR

Ref.No	Part No.	Description			Remark
R148	1-216-025-00	METAL GLAZE	100	5%	1/10W
R149	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R150	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R151	1-216-045-00	METAL GLAZE	680	5%	1/10W
R152	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R153	1-216-109-00	METAL GLAZE	330K	5%	1/10W
R155	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R156	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R157	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R158	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R159	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R160	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R161	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R162	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R163	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R164	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R165	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R166	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R167	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R168	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R169	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R170	⚠1-216-097-91	METAL GLAZE	100K	5%	1/10W
R171	⚠1-216-093-91	METAL GLAZE	68K	5%	1/10W
R172	1-216-748-11	METAL GLAZE	39K	5%	1/10W
R173	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W
R174	1-216-115-00	METAL GLAZE	560K	5%	1/10W
R175	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R176	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R177	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R178	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R179	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R180	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R181	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R182	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R183	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R184	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R185	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R186	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R187	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R188	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R189	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R190	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R191	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R192	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R193	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R194	1-216-045-00	METAL GLAZE	680	5%	1/10W
R195	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R196	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R197	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R198	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R199	1-216-097-00	METAL GLAZE	100K	5%	1/10W

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV151	1-237-776-11	RES, VAR, CARBON 10K	

SWITCH

Ref.No	Part No.	Description	Remark
S151	1-570-870-11	SWITCH, SLIDE	AUTO LOCK
S152	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)SHUTTER	
S153	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)ZERO MEM	
S154	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)FADER	
S155	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)EDIT SERCH-	
S156	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)	
S157	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)RESET	
S158	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)WHITE BAL	
S159	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)EDIT SERCH+	
S160	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)DATA SET	
S161	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)SELECT	
S162	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)FOCUS	

TESTPOINT

Ref.No	Part No.	Description	Remark
TP151	*1-535-622-11	PIN, TERMINAL	
TP152	*1-535-622-11	PIN, TERMINAL	
TP155	*1-535-622-11	PIN, TERMINAL	
TP156	*1-535-622-11	PIN, TERMINAL	

CRYSTAL

Ref.No	Part No.	Description	Remark
X151	1-527-997-21	VIBRATOR, CRYSTAL 32,768KHz	

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*1-622-927-21 FK-4P BOARD

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CONNECTOR

Ref.No	Part No.	Description	Remark
CN153	*1-563-586-11	CONNECTOR, FLEXIBLE 9P	

SWITCH

Ref.No	Part No.	Description	Remark
S163	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) ▮▶	
S164	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) ▮▮	
S165	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) ▷	
S166	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) FF ▶▶	
S167	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) ■	
S168	1-571-102-11	SWITCH, SLIDE REC ●	
S169	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) REW ◀◀	
S170	1-571-102-11	SWITCH, SLIDE EJECT	
S171	1-571-101-11	SWITCH, SLIDE CAM, OFF, VTR	

TESTPOINT

Ref.No	Part No.	Description	Remark
TP157	*1-535-622-11	PIN, TERMINAL	

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*A-7060-937-A SW-40P BOARD, COMPLETE

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CAPACITOR

Ref.No	Part No.	Description			Remark
C951	1-123-321-00	ELECT	220MF	20%	16V
C952	1-135-104-00	TANTAL CHIP	10MF	20%	4V
C953	1-163-141-00	CERAMIC CHIP	0.001MF		50V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN951	*1-564-005-00	PIN, CONNECTOR 6P	
CN952	*1-564-002-00	PIN, CONNECTOR 3P	
CN953	*1-564-001-11	PIN, CONNECTOR 2P	
CN954	*1-564-001-11	PIN, CONNECTOR 2P	

COIL

Ref.No	Part No.	Description	Remark
L951	1-410-337-11	MICRO INDUCTOR 1UH	
L952	1-410-337-11	MICRO INDUCTOR 1UH	
L953	1-410-369-11	INDUCTOR CHIP 1UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q951	8-729-903-10	TRANSISTOR FMW1	
Q952	8-729-805-25	TRANSISTOR 2SB1121	
Q953	8-729-162-44	TRANSISTOR 2SB624	

When indicating parts by reference number, please include the board name.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

RESISTOR

Ref.No	Part No.	Description			Remark
R951	1-216-334-11	METAL GLAZE	22K	1%	1/10W
R952	1-216-336-11	METAL GLAZE	47K	1%	1/10W
R953	1-216-045-00	METAL GLAZE	680	5%	1/10W
R954	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R955	1-216-334-11	METAL GLAZE	22K	1%	1/10W
R956	1-216-336-11	METAL GLAZE	47K	1%	1/10W
R957	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R958	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R959	1-216-158-00	METAL GLAZE	22	5%	1/8W

SWITCH

S951	1-570-689-11	SWITCH, KEY BOARD START/STOP
S952	1-553-977-00	SWITCH, SLIDE STANDBY↔LOCK

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*A-7060-938-A MC-17P BOARD, COMPLETE

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CAPACITOR

C516	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C517	1-162-993-11	CERAMIC CHIP	0.22MF	10%	16V
C518	1-162-993-11	CERAMIC CHIP	0.22MF	10%	16V
C521	1-124-638-11	ELECT	22MF	20%	6.3V
C522	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C523	1-135-099-00	TANTAL. CHIP	2.2MF	20%	6.3V
C524	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C526	1-124-224-00	ELECT	47MF	20%	6.3V
C529	1-163-035-00	CERAMIC CHIP	0.047MF	10%	25V
C530	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C531	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V

CONNECTOR

CN516	*1-564-012-00	PIN, CONNECTOR 2P

IC

IC516	8-759-111-56	IC UPC4572G2

JACK

J516	1-507-921-00	JACK MIC PLUG IN POWER
J517	1-563-454-11	JACK, MINIATURE DC OUT
J518	1-507-921-00	JACK EARPIECE

COIL

L516	1-410-369-11	INDUCTOR CHIP 1UH
L517	1-410-369-11	INDUCTOR CHIP 1UH
L518	1-410-369-11	INDUCTOR CHIP 1UH
L519	1-410-192-51	INDUCTOR CHIP 1UH
L520	1-410-192-51	INDUCTOR CHIP 1UH
L521	1-410-192-51	INDUCTOR CHIP 1UH

RESISTOR

R516	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R517	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R518	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R519	1-216-091-00	METAL GLAZE	56K	5%	1/10W
R520	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R521	1-216-103-00	METAL GLAZE	180K	5%	1/10W
R522	1-216-025-00	METAL GLAZE	100	5%	1/10W
R523	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R524	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R525	1-216-296-00	METAL GLAZE	0	5%	1/8W
R526	1-216-049-00	METAL GLAZE	1K	5%	1/10W

When indicating parts by reference number, please include the board name.

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*A-7060-961-A AF-32 BOARD, COMPLETE

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CAPACITOR

C001	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C002	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C003	1-124-464-11	ELECT	0.22MF	20%	50V
C004	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C005	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C006	1-124-234-00	ELECT	22MF	20%	16V
C007	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C008	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C009	1-124-026-00	ELECT(BLOCK)	3300MF		35V
C010	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V

CONNECTOR

CN001	1-563-587-11	CONNECTOR, FLEXIBLE 10P
CN002	1-563-608-11	CONNECTOR, FLEXIBLE 5P
CN003	1-563-936-11	PIN, CONNECTOR 2P
CN004	1-563-937-11	PIN, CONNECTOR 3P

IC

IC001	9-909-857-01	IC HIM21
IC002	9-992-551-01	IC 8DC49AV-6691
IC003	9-909-855-01	IC LAG648

TRANSISTOR

Q001	8-729-103-16	TRANSISTOR 2SC1622A-D17
Q002	8-729-104-26	TRANSISTOR 2SB804-AW

RESISTOR

R001	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R002	1-216-295-00	METAL GLAZE	0	5%	1/10W
R003	1-216-096-00	METAL GLAZE	91K	5%	1/10W
R004	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R005	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R006	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R007	1-216-046-00	METAL GLAZE	750	5%	1/10W
R008	1-216-046-00	METAL GLAZE	750	5%	1/10W
R009	1-216-080-00	METAL GLAZE	20K	5%	1/10W
R010	1-216-041-00	METAL GLAZE	470	5%	1/10W
R011	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R012	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R013	1-216-304-11	METAL GLAZE	3.3	5%	1/10W
R014	1-216-046-00	METAL GLAZE	750	5%	1/10W
R015	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R016	1-216-045-00	METAL GLAZE	680	5%	1/10W
R017	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W

VARIABLE RESISTOR

VR001	1-230-287-00	RES, ADJ, METAL GLAZE 10K
VR002	1-237-485-11	RES, ADJ, METAL FILM 220K
VR003	1-237-529-11	RES, ADJ, METAL FILM 1K

CRYSTAL

X001	1-567-470-11	VIBRATOR, CERAMIC

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Ref.No	Part No.	Description	Remark
	1-622-938-23	FP-70P FLEXIBLE BOARD **************	
	1-535-658-21	TERMINAL BOARD	

IC LINK

Ref.No	Part No.	Description	Remark
PS951	⚠1-532-841-21	LINK, IC PRF1600 1.6A	
PS952	⚠1-532-841-21	LINK, IC PRF1600 1.6A	

MISCELLANEOUS

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Ref.No	Part No.	Description	Remark
	⚠1-464-815-11	CONVERTER UNIT, DC-DC	
	1-535-574-11	TERMINAL, SHAFT GROUND	
	1-542-089-11	MICROPHONE, ELECTRET,CONDENSER	
	1-547-242-11	LENS, ZOOM (VCL-1206YH)	
	1-807-238-11	SENSOR, DEW CONDENSATION	
C901	1-161-051-00	CAP, CERAMIC 0.01MF X	
L901	⚠1-451-310-11	DEFLECTION YOKE (B/W)	
M902	A-7040-135-A	MOTOR BLOCK ASSY(2), CAPSTAN	
M903	1-541-508-11	MOTOR, DC (LOADING)	
S901	1-571-100-11	SWTCH,,PUSH (ZOOM)	
S902	1-553-226-00	SWITCH, LEAF (CC DOWN)	
V901	⚠1-546-065-21	CATHODE-RAY TUBE,B/W	

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ACCESSORIES AND PACKING MATERIALS

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Part No.	Description	Remark
*3-718-220-01	CUSHION (UPPER)	
*3-718-221-01	CUSHION (LOWER)	
3-769-236-11	MANUAL, INSTRUCTION (ENGLISH)	
3-769-236-41	MANUAL,INSTRUCTION(FRENCH,GERMANY,DUTCH)AEP,EMODEL	
3-769-236-51	MANUAL,INSTRUCTION(SPANISH,SWEDISH,ITALIAN)AEP,E MODEL	
3-769-236-71	MANUAL,INSTRUCTION(ARABIC)E MODEL	
4-344-284-00	BAG, PROTECTION	

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The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.